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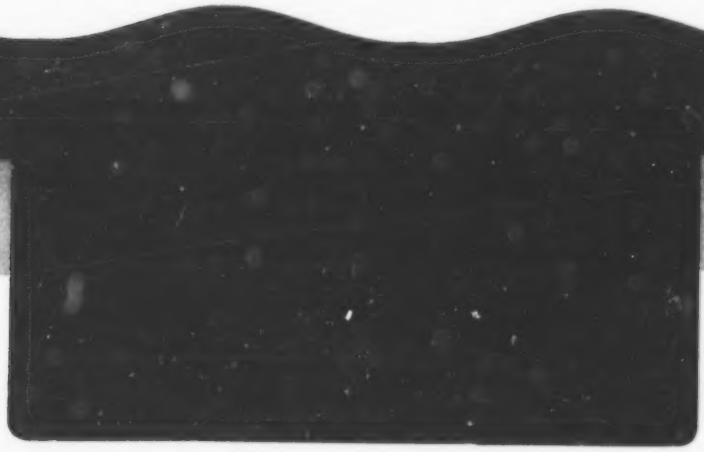

Investigation Report to the Minister pursuant to sections 477 or 480 of the Canada Shipping Act (1985)

Rapport d'investigation au Ministre conformément aux articles 477 ou 480 de la Loi sur la marine marchande du Canada (1985)

Canada

90-05889/

Ce rapport est aussi disponible en français.

REPORT OF INVESTIGATION INTO THE CIRCUMSTANCES ATTENDING THE COLLISION BETWEEN THE LIBERIAN REGISTERED BULK CARRIER "PAPU" AND TWO BARGES IN TOW OF THE CANADIAN TUG "LARAIN", IN THE JUAN DE FUCA STRAIT, U.S. WATERS, JULY 12, 1989.

REPORT No. 539

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REPORT OF INVESTIGATION INTO THE CIRCUMSTANCES ATTENDING THE COLLISION BETWEEN THE LIBERIAN REGISTERED BULK CARRIER "PAPU" AND TWO BARGES IN TOW OF THE CANADIAN TUG "LARAIN", IN THE JUAN DE FUCA STRAIT, U.S. WATERS, JULY 12, 1989

Particulars of Vessels

Name	"PAPU" from 1989	"LARAIN" from 1979
Former Names	"THEMISTOCLES PETRAKIS" from 1987 "TARPON SUN"	"EUPHORIC"
Port of Registry	Liberia, Monrovia	Vancouver, B.C.
Official Number	5429	392760
Call Sign	ELIV6	VG6166
Gross Tonnage	14,781	237.0
Net Tonnage	9,160	27.48
Length	185.17 m	29.11 m
Breadth	22.99 m	8.23 m
Draught (at time of incident)	7.58 m F 8.06 m A	3.05 m F 4.27 m A
Type	Bulk carrier (steel)	Tug (steel)
Built	1982 Varna, Bulgaria	1958 Port Arthur, Texas
Propulsion	6 cylinder, 12,000 BHP diesel engine, driving one fixed-pitch propeller	16 cylinder, 1,640 BHP diesel engine, driving one fixed-pitch propeller
Cargo	10,662 tonnes wheat	Two empty barges in tow
Crew	23	5
Others on Board	Nil	One, Canadian, Department of Environment employee

Classification	Lloyds Register of Shipping	---
Owner/Operator	(Owner) Gras Shipping Inc. Monrovia, Liberia	(Owner/Operator) Island Sea Marine Limited West Vancouver British Columbia
Agent	Compass Marine Vancouver, B.C.	Nil
Navigating Equipment		
Radar (1)	Sperry Marine Model MK-4016, ranges 1.5 miles to 120 miles, gyro stabilized	Decca RM916C ranges 0.25 mile to 48 miles, ship's head up, non gyro stabilized
Radar (2)	Sperry Marine Model MK-3012, ranges 1.5 to 120 miles, ship's head up, non gyro stabilized	Nil
Radio Direction Finder	Koden KS541, audio and visual	Sailor, audio only
Echo/Depth Sounder	Elac, visual and record	Keiki, visual and record
Loran C	Nil	Sitex, Koden
Satellite Nav' System	Sperry, SRN501	Nil
VHF (1)	Sailor, 0-80 channels fitted with channel 16 override	Sailor, 0-80 channels
VHF (2)	Sailor, 0-80 channels fitted with channel 16 override	Nil
MF Radio/SSB Radio and W/T	Fitted in the radio room	Sailor CB and SSB radios fitted in wheel-house

Gyro Compass	Sperry	Keiki
Auto Pilot	Sperry	Sperry
Magnetic Compass	Fitted	Constellation
Steering	Sperry, electric and hydraulic	Sperry, electric and hydraulic
Engine Controls	From bridge via telegraph to engine-room personnel	Direct from wheel-house
Whistle	Automatic or hand operated	Hand operated
Speed Log	Sperry, Doppler	Nil
Course Recorder	Sperry (non operative)	Nil
Chart in Use	British Admiralty, No. 2941, published May 1952, corrected to Notice to Mariners No. 1336, 1989	Canadian Hydrographic Chart No. 3607, corrected to Notice to Mariners No. 239 of 1979 (outdated)

Barges in Tow

Name	"MILLER 309"	"MILLER 310"
Official Number	348863	348864
Gross Tonnage	1,348.89	1,348.89
Length	59.13 m	59.13 m
Breadth	12.89 m	12.89 m
Type	None-propelled, unmanned, hopper barge	Non-propelled, unmanned, hopper barge
Built	1974	1974
Cargo	Nil	Nil
Cargo Capacity	1529 cubic metres	1529 cubic metres
Crew	Nil	Nil

Owners	Miller Contracting Limited Langley, B.C.	Miller Contracting Limited Langley, B.C.

Description of Vessels

"PAPU"

The "PAPU" is an all steel vessel, designed and used for the international carriage of dry bulk cargoes. Her engines, accommodation and navigation bridge are situated aft and there are seven holds forward.

The main engine is operated from the engine-room, engine speeds and directions being adjusted by engine-room personnel in response to orders transmitted from the navigation bridge by telegraph. During times when frequent or immediate engine movements can be expected, such as entering areas of high traffic density or when in poor visibility, additional personnel man the engine-room and the engine is set at manoeuvreing speed which gives propeller revolutions of 90 per minute producing a speed through the water of some 13 knots. Her service speed at full ahead in good weather is some 16 knots.

All of her certificates were valid and up to date.

"LARAIN"

The "LARAIN" is an all steel tug (tow boat) designed and built to tow other vessels, principally barges, for the transportation of various cargoes. She has no integral cargo capacity.

Her main engine is operated directly from the navigation bridge and when towing two empty barges, as in this case, her speed through the water is maintained at some 8.5 knots.

The "LARAIN" was in possession of an invalid Steamship Inspection Certificate (SIC 17), issued by the Ship Safety Branch of the Canadian Coast Guard, which had expired on March 26, 1987.

The Two Barges - "MILLER 309" and "MILLER 310"

Both barges are identical in size, construction and purpose. They are not self-propelled and do not carry a crew, therefore, reliance for propulsive power and navigation

is placed upon an attendant tug.

They are designed as 'dump' barges inasmuch as cargo is carried in hoppers contained within the barges, watertight hulls which can be opened at the bottom allowing the cargo to be dumped into the sea.

Because they are unmanned, none of the construction regulations made pursuant to the Canada Shipping Act apply. Consequently, they are not required to be inspected, and are not inspected, by the Ship Safety Branch of the Canadian Coast Guard.

NOTE: (1) All times in this report are expressed in Pacific Daylight Saving Time (UTC minus 7 hours).

(2) All references to the Canada Shipping Act in this report refer to Chapter S-9-1985 of the Revised Statutes of Canada.

(3) A glossary of terms and abbreviations can be found following the findings in this report.

Background

The "PAPU" was enroute to Vancouver, British Columbia, with a cargo of wheat; the "LARAIN" was enroute to New Westminster, British Columbia, towing the two empty barges. The route taken by both vessels required them to navigate in an easterly direction in the Juan de Fuca Strait. Both vessels were in U.S. waters but under Canadian VTS jurisdiction until their arrival at longitude 124°40'W. While in the Juan de Fuca traffic separation zone, in position 48°27.7'N, 124°39.9'W, a collision occurred between the "PAPU" and the two barges.

The collision took place during daylight hours, while the "PAPU" was overtaking the "LARAIN" and her barges, in good weather conditions but reduced visibility due to fog and while the two vessels were in radiotelephone communication with each other.

There were no injuries or pollution as a result. Damage to the "PAPU" consisted of minor hull repairs amounting to some $6,000; there was minor hull indentation to one barge which did not require repair and no damage to the other barge or to the "LARAIN". All of the vessels completed their voyages without further incident.

Although costs of repairs were minor in this case, the potential of this type of casualty to incur loss of life or environmental pollution with its consequent high cost is considerable. This was the third collision involving vessels of substantial tonnage to occur off the west coast of Vancouver Island, within the area of Canadian VTS operations, during the last twelve months.

Narrative

This section of the report gives both vessels' accounts separately, followed by an account of both vessels' actions, subsequent to the establishment of R/T communications between them. These communications were recorded by a Canadian Coast Guard Radio Station. A chronology of events is contained in the Analysis, section 7.

"PAPU"

The "PAPU" was manned by a Korean master and crew. She had departed Portland, Oregon, USA, during the morning of Tuesday, July 11, 1989, bound for Vancouver, British Columbia, with a cargo of 10,662 tonnes of wheat.

Since leaving Portland, the weather and visibility had been fine; but from 1012 on the morning of Monday, July 12, until the collision at 1114, the visibility became reduced to some 200 m in fog. From 1012, the vessel had been placed in the standby mode for reduced visibility; i.e., the engine revolutions were reduced giving a speed through the water of some 13 knots, extra personnel manned the engine-room to assist in any required engine manoeuvres, the regulatory fog signals were sounded by use of the automatic device, the steering was changed from automatic to hand steering and the regulatory navigation lights were exhibited.

The master had attended the navigation bridge since 0800 that morning together with the 3rd mate; consequently, the bridge manning from the time of reduced visibility at 1012 to the time of collision at 1114 comprised the master, 3rd mate and helmsman. A designated look-out had not been posted but the boatswain had been instructed to keep a look-out from the forecastle head at the bow of the vessel if his deck work duties allowed, however, he did not have the opportunity to keep a look-out. Consequently, until the collision, the look-out comprised the master and 3rd mate, alternately looking and listening from each navigation bridge wing when not viewing each radar PPI (screen).

Both radars were in use and their ranges were constantly

switched between 12, 6 and 3 miles in order to give long range scanning and detection together with the short range detection of objects less radar detectable.

One of the VHF radiotelephones was set on channel 74 which was the appropriate intership and VTS communications channel and from 0923 the "PAPU" was in frequent VHF R/T communication with Canadian Coast Guard Vessel Traffic Services (Tofino, VTS), regarding her position, rate of progress and the movements of other vessels in the area. As required, the vessel had advised the Western Canada Vessel Traffic Services Zone (WESTREG) by R/T of her intention to enter the Tofino Vessel Traffic Services Zone and had received clearance to do so.

It was the intention to reach a position at the entrance to the traffic separation zone and then to steer 116° True(T) along the east-bound traffic lane. (See copy CHS Chart 3606.) At approximately 1030, when the "PAPU" was some 6 miles south-west of the traffic separation zone and while steering 050°(T) the radar echoes of what subsequently proved to be the "LARAIN" and the two barges were observed to be 4 miles distant bearing fine on the starboard bow. Subsequent plotting by means of a radar reflection plotter indicated the targets were heading approximately 076°T at a speed of some 8 knots and would consequently pass further to starboard, away from the course line of the "PAPU" and in a direction towards the east-bound traffic lane.

At 1040, the "PAPU" altered course 16° to port to steer 034°T, which was an appropriate course to steer to reach her intended arrival position at the entrance to the east-bound traffic lane and one which would give the targets greater clearance while they were on their 076° course.

It was estimated the "PAPU" would enter the traffic lane some 2 miles astern of the tug and tow and it was assumed that the tug and tow would transit the lane on a course of 116°T, similar to the intended course of the "PAPU".

At 1040, the "LARAIN", having been advised by VTS of the "PAPU" position and intentions, called the "PAPU" and advised that the "LARAIN's" intention was to maintain a course of 075°T in order to cross the traffic lanes and head towards the shoreline of Vancouver Island which is the northern boundary of the strait. However, this information was not understood by the "PAPU" who still believed the intent of the "LARAIN" was to adhere to the east-bound traffic lane on a course of 116°T while maintaining the starboard side of the lane. Realizing that she, the "PAPU", was some 5 knots faster and would overtake, she advised the "LARAIN" that her

intention was to overtake on the port side of the "LARAIN".

At 1055 the "PAPU" reached the entrance to the lane and altered course to 070°T followed shortly by an alteration to 095°T which was 21° to port of the intended course of 116°T in order to reach the northern, port-hand, limits of the lane. The radar targets of the "LARAIN" and tow indicated them to be at the southern limits of the lane and if, as supposed by the "PAPU", they had then altered course to a course of 116°T, then the "PAPU" would have overtaken at a distance to port of approximately 1 mile.

At 1100, after the "PAPU" had altered course to 095°T, the radar targets of the "LARAIN" and tow were bearing 125°T, distant 1.8 miles, which placed them 30° on the starboard bow. However, at 1112, when distant some 0.3 mile, the radar targets appeared to alter course to port and to cross the bow of the "PAPU" from starboard to port; therefore, the order was given to alter course to hard-a-port in the belief that the "PAPU" would turn to port with sufficient room to clear the targets.

While turning to port, a barge was sighted some 200 m on the starboard bow followed soon after by the sighting of the other barge on the port bow. At 1114 the port bow of the "PAPU" contacted the stern on the starboard side of the barge which was to port and the orders were given to put the helm to amidships and the engine to full astern. It seems that the tow line between the two barges caught on the hull of the "PAPU" because as the vessel slowed, the barge to starboard approached the starboard side of the "PAPU" while the barge to port moved down the port side until both were alongside and at approximately the mid-length while being towed by the "PAPU". The "PAPU" rapidly slowed and stopped.

"LARAIN"

The "LARAIN" had towed the two barges to a dumping ground situated some 90 miles to the west of the Juan de Fuca Strait, dumped a total of 1,600 tonnes of gypsum waste and, at 2330, July 11, departed the grounds with the two empty barges to return to New Westminster, British Columbia.

She was manned by a Canadian crew comprising the master, mate, chief engineer and two deck-hands. In addition, there was one employee of the Canadian Department of the Environment whose duty it was to ensure that the waste was disposed of in accordance with the Department's environmental guidelines.

Since leaving the grounds, the weather and visibility

had been fine, but from 1000 on the morning of Monday, July 12, until the collision at 1110, the visibility became reduced to some 400 m due to fog. The appropriate and regulatory fog signals for a vessel towing were sounded; no sound signals were made from the barges as they were unmanned and therefore not required to make such signals by Regulation. The engine was of a type directly controlled from the bridge; the speed through the water of some 8.5 knots was considered safe for the manoeuvreability of the tow, therefore, the existing engine speed was maintained. The steering was kept in the automatic mode and the regulatory navigation lights were exhibited; the VHF radiotelephone was set on the appropriate channel 74.

The master had attended the navigation bridge since 0600 that morning having relieved the mate at that time and until the time of the collision had the sole conduct of the vessel and tow. Westreg had been advised by VHF R/T of the vessel's intention to enter the Tofino Traffic Zone and she had received clearance to do so.

When approaching the Juan de Fuca Strait, a course of 075°T was being steered to enter the east-bound traffic lane. (See copy CHS Chart 3606.) However, at 1021, after encountering fog, the decision was made to cross the traffic lanes and attain the south coast of Vancouver Island, provided there was little out-bound traffic. An R/T call was made to Tofino VTS on the appropriate intership and VTS communications channel 74 requesting information regarding traffic in the area and advising that the "LARAIN" would like to cross the lanes; at 1023 the "LARAIN" was advised by VTS of the position of other vessels including the course and speed of the "PAPU" and that the "PAPU" was bearing 204°T, distant 4.5 miles from the "LARAIN". The radar target of the "PAPU" was clearly discernable to the "LARAIN", however, no plotting or other systematic radar observations were made other than observing bearings and distances between the vessels.

Realizing that the "PAPU" was astern, was the faster vessel and would overtake, the "LARAIN" called the "PAPU" on channel 74 VHF R/T, and at 1040, having established communications, the "LARAIN" advised that her intention was to cross the traffic lanes on a course of 075°T.

At 1103 the "LARAIN" again called the "PAPU" advising that they were now only 1 mile ahead and requesting whether or not the intention of the "PAPU" was to pass astern (and therefore to starboard of the "LARAIN"); the "PAPU" replied that the intention was to pass on the port side of the "LARAIN". Further communication indicated the course of the "PAPU" to be 095°T, however, the "LARAIN" still believed the

"PAPU" would pass astern and then overtake the "LARAIN" on her starboard side. Consequently, the "LARAIN" advised that she would alter course 20° to port to steer 055°T in order to make sure the tow would clear the "PAPU". At 1112 the "PAPU" was seen by the "LARAIN" as she collided with the lead barge and then began to tow both barges.

The engine was stopped and the general alarm sounded which brought the crew to the wheel-house. In the meantime, the master proceeded to the after deck to slack away the tow wire from the winch in case the "PAPU" and barges could not be stopped before beginning to also tow the "LARAIN".

"LARAIN" and "PAPU"

When the collision occurred, the tow wire between the two barges apparently caught on an underwater projection on the hull of the "PAPU", possibly the bilge keel or keels, which caused the two barges to move alongside the "PAPU" until both were approximately at mid-length, the "PAPU" towing them with their tow line. (See sketch.)

From then the "PAPU" rapidly slowed and stopped and in the meantime the "LARAIN", which had also stopped, slacked away on the tow line between her and the lead barge. Once the "PAPU" had stopped in the water, the two barges drifted clear, presumably due to the tension on the tow wire being reduced sufficiently to allow it to fall clear of the hull projection.

The "LARAIN" and "PAPU" kept in continuous R/T communication and, after assessing damage and ascertaining that neither required assistance, both proceeded with their voyages, arriving at their destinations without further incident.

Communications and Actions "PAPU"/"LARAIN"

Having been advised by Tofino Traffic of the position, course, speed and intentions of the "PAPU", the "LARAIN" called the "PAPU" at 1040 on VHF R/T channel 74, gave her name and advised that she was 2.8 miles ahead and to starboard of the "PAPU" on a bearing of 048°T, steering a course of 075°T and that the intention was to cross the traffic lanes and head towards the Vancouver Island shore.

The "PAPU" did not understand or fully receive the message and replied referring to the caller as Tofino Traffic, requesting a repeat of the message.

The "LARAIN" repeated her name and the information

regarding her position relative to the "PAPU", together with the course steered and adding that there were two barges in tow; however, the information regarding the intention to cross the traffic lanes was not repeated. The communication ended with the "PAPU" indicating her understanding of the message. At this time the vessels were positioned such that both were south of the lane, the "PAPU" heading 034°T towards the outer entrance to the lane, the "LARAIN" heading 075°T toward the southern outer edge of the lane. (See copy CHS chart 3606.)

At 1102 and again at 1103, while crossing the lane, the "LARAIN" again called the "PAPU" advising that she was slightly more than 1 mile ahead and asking if the intention of the "PAPU" was to pass astern of the "LARAIN" and tow, adding that her course was still 075°T. The "PAPU" at that time had reached the entrance to the lane and was about to alter her course to 116°T which was towards the "LARAIN" and, believing the "LARAIN" would adhere to the traffic lane the "PAPU" replied that she was altering course to 116°T and that she would overtake on the port side of the "LARAIN".

A further series of communications, between 1108 and the time of collision at 1112, indicates the "PAPU" intended to pass the "LARAIN" on her port side, that a course alteration to steer 095° had been made to give greater overtaking distance and that speed would be maintained at 13.0 knots.

The communications from the "LARAIN" indicated that her course was 075°T but she would alter course 20° to port to steer 055°T while expecting the "PAPU" to alter course to starboard to clear the barges astern.

It seems the collision occurred with neither vessel aware of the intentions of the other and with both believing that the other would react to each vessel's own stated intentions and subsequent actions.

Analysis

1. Navigational and mechanical equipment, both vessels

Both vessels were reportedly in good condition and had not experienced mechanical or steering equipment problems either prior to or during the collision.

2. Time discrepancies

The slight differences in recorded times made by both vessels and by Tofino Traffic are considered to be due

to the vessels' clocks being read to the nearest minute and, to their clocks being slightly in error. Exact times are considered to be those recorded by Tofino VTS computer plot.

3. Weather and forecasts

The weather forecast for the area Juan de Fuca Strait, issued by Environment Canada at 0545, July 12, indicated that the weather to be expected would be westerly winds of 5 to 15 knots becoming light to variable with consequent slight to moderate seas.

Both vessels reported the weather conditions to be; winds light north-westerly with calm to slight seas. The fog, although not forecast for that area, had been forecast for other local areas and due to their local knowledge and previous experience it was not unexpected by either vessel.

4. The tow and the two barges

The two barges were towed from the "LARAIN" by a towing wire of a total length of 717 m. (See sketch.) The wire had been run out to a length of 366 m, leaving 351 m on the towing winch. It was attached to the bow of the lead barge, which was the "MILLER 309", by means of a chain bridle; a second towing wire of 137 m in length led from that bridle and was secured to the bow of the "MILLER 310", which was the end barge, by means of another chain bridle. This meant that 59 m of the tow line led under the "MILLER 309", the remaining 78 m providing the distance between the stern of the "MILLER 309" and the bow of the "MILLER 310". While the tug was towing, the weight of the tow lines would cause a catenary between the tug and the lead barge and a second catenary between the lead barge and the end barge.

The catenaries would cause the tow wires to sink below the sea surface to varying depths along their lengths depending upon the strain placed upon the ends by the tug towing and the resistance of the barges to their forward motion through the water.

Both barges were structurally sound and floated at an even keel; reportedly they towed in line and immediately astern of the tug with no sheering. The total length of tug and tow was in the region of 600 m, or 0.32 nautical mile.

5. **Manoeuvrability, tug and tow**

Barges being towed astern do not immediately respond to alterations in the heading of the towing vessel. Consequently, the 20° alteration of course to port by the "LARAIN" would be followed after a time lapse by the lead barge and after a further shorter time lapse by the end barge, which would account for the "PAPU" first sighting the end barge to starboard and then the lead barge to port as it was altering course from 075°T to 055°T in response to the similar alteration by the "LARAIN".

6. **Manoeuvrability, "PAPU"**

Information provided in the ship's documents showed that, when in the loaded condition, as in this case, when turning to port with the helm hard-to-port, then the tactical diameter of the turn would be in the region of 640 m, the advance some 650 m and the transfer 320 m; the time taken to complete 90° of turn being 1 minute 45 seconds. In other words, the approximate response to the hard-a-port order to the helmsman would be that over a period of 1 minute 45 seconds the ship would turn 90° from her course while continuing to move 650 m ahead and laterally for a distance of 320 m to port of the original course line.

The helm order of hard-a-port was given at 1111. The collision occurred at 1112. Allowing a time lapse of 15 seconds for the helmsman's response, it is considered that the "PAPU" had turned some 30° and was heading approximately 065°T at the time of the collision. The direction between the two barges was approximately 055°T at that time, which means the "PAPU" crossed the course of the barges at an angle of some 10° and between them.

7. **Chronology of events**

The following chronology of events is derived from a transcript of the recorded communications between the two vessels together with Tofino VTS computer vessel position records which show the charted positions of each vessel for the period 111012 to collision at 111212.

Hrs./Min./Sec.		
10.40.14	"LARAIN"	Vessel "PAPU" tug "LARAIN" calling (long pause) "PAPU" "PAPU" the "LARAIN" calling

At this time both vessels were south of the traffic lane. (See sketch.)	"PAPU"	This is pap(garbled) go ahead please
	"LARAIN"	Yes the tug "LARAIN" we're just under three miles about two point eight miles ahead of you on a bearing from you of about oh four eight true and we're on a course of oh seven five to cross the lanes into the outbound lanes we'll be heading over to the Vancouver Island shore, thought we'd advise you
	"PAPU"	Tofino Traffic Tofino Traffic this is "PAPU" could you please repeat over
	"LARAIN"	Yes it's the tug "LARAIN" calling the "PAPU" we're about two point seven miles on your starboard on a bearing of approximately oh four eight from you we're steering oh seven five we have two barges in tow
	"PAPU"	Ah roger roger rog
11.02.37	"LARAIN"	"PAPU" "PAPU" tug "LARAIN"
11.03.48	"LARAIN"	The "PAPU" "PAPU" tug "LARAIN"
The "LARAIN" was steering 075°T. The "PAPU" had altered course to 095°T in order to overtake and clear the "LARAIN" on her port side.	"PAPU"	This is "PAPU" go ahead please

	"LARAIN	"Yes the tug "LARAIN" "PAPU" we're just over one mile ahead of you do you intend to pass astern of us could you let us know we're on a course of zero seven five (garbled)
The intended course was 116°T, however it had been changed to 095°; i.e., 21° further to port.	"PAPU"	Yes I understand that I'll I'll will just alter course one one six degrees and I'll pass on your port side, on your port side, over
	"LARAIN"	On our port side then you'll pass ahead of us on our course line
	"PAPU"	This is "PAPU" do you know the tugboat I'll pass on your port side, on your port side over
	"LARAIN"	Roger OK I see you're having a steady bearing right now you're one mile from us but we'll watch for you then
	"PAPU"	OK Thank you (garbled)
11.08.11	"LARAIN"	"PAPU" "PAPU" "LARAIN"
	"PAPU"	This is "PAPU" tug a "LARAIN" go ahead
	"LARAIN"	Yes you're only one quarter of a mile from our barges "PAPU" and you're on a steady bearing for them, what course are you steering over
	"PAPU"	Yes now already told you that my course change to avoid you now zero nine five degrees over
The "LARAIN" alters course 055°T	"LARAIN"	Roger if you could come to starboard more we will alter twenty degrees to port, we will alter from oh seven five to oh five five to make sure

		we clear you
	"PAPU"	OK anyhow (garbled) we make speed full, I'll let me pass first on your port side anyhow
	"LARAIN"	Well if you're steering oh nine oh and we're steering oh five oh you won't pass on our port side you'll pass on our starboard side
	"PAPU"	OK anyhow I'll pass on your port side
11.10.12	"PAPU"	Tug "LARAIN" tug "LARAIN" this is "PAPU" do you read me over
11.10.53	"PAPU"	Tug "LARAIN" tug "LARAIN" (garbled)
11.11.03	"PAPU"	Hard a port hard a port
11.11.34	"PAPU"	Tug "LARAIN" tug "LARAIN" what is your course
11.12.12	"PAPU"	Wait now, collision

The transmission at 111103 of hard-a-port was in fact an order to the helmsman, made while the R/T transmit button was inadvertently still depressed.

The communications as shown above do not make allowance for the accented voices of the participants. However, the insistence by the "PAPU" that her intention was to pass the "LARAIN" on her port side, repeated five times, was quite clear and although the "PAPU" did not state that it was her intention to adhere to the traffic lane, that intent could have been evident to the "LARAIN".

The difficulty found by the "PAPU" in understanding the intent of the "LARAIN" when she appeared, by radar, to start to cross the traffic lane instead of following it seems to be caused by the following facts:

- the "PAPU" did not receive the VHF broadcast made by the "LARAIN" at 10.40.14 in which the latter vessel advised of her intent to cross the eastbound traffic lane;

- the "PAPU" knew that the Juan de Fuca Traffic Separation Scheme was compulsory and assumed that the "LARAIN" would follow the eastbound traffic lane; and

- both vessels did not employ standard marine terminology while communicating with each other.

8. **Command of the English language, and R/T communications, both vessels**

As agreed in the International Maritime Organization (IMO) Convention, the language for intership communication is English.

On the "LARAIN" the master, who was a Canadian National, had an excellent ability in English. The master of the "PAPU", who was a Korean National, had a good knowledge of English, particularly nautical terminology, inasmuch as it was not considered necessary to employ the services of an interpreter during investigation interviews. However, it did become apparent during those interviews, later reinforced by listening to and reading the transcripts of the recorded messages, that replies to advice and questions from the "LARAIN", whether in the positive or negative context, were invariably preceded by the words, yes or roger, followed after some thought by the answer. It would seem that the "LARAIN" responded to the initial words rather than taking notice of the full reply.

The "LARAIN" also often commenced communications with the word 'yes' and it would seem the "PAPU", not having received the initial information regarding the intention of the "LARAIN" to cross the traffic lane, did not fully understand the subsequent messages from the "LARAIN" with the consequence it was believed the "LARAIN" would adhere to the traffic lane.

9. **Radiotelephone Operator's Certificates**

The master of the "LARAIN" held the required Canadian Radiotelephone Operator's Certificate. Similar qualifications are a required part of Korean navigators' certificates.

10. **Radiotelephone operations**

The internationally accepted procedures when operating marine radiotelephones are based on those formulated by the International Telecommunications Union (ITU) and in

Canadian waters on the General Radio Regulations made pursuant to the Radio Act of Canada.

The Government of Canada publication entitled 'A guide for the Radiotelephone Operator', shows, in the section headed Operating Procedure, the accepted procedural words and phrases. It is made clear by the recorded messages between the two ships that the procedures were not adhered to. A copy of the procedures is contained in the Annex to this report.

11. **Communications, Tofino Traffic, VTS System**

The communications were carried out by the two vessels and by Tofino Traffic on the designated VHF, R/T channel 74; consequently, all were able to hear each others communications. When the two vessels established communications Tofino Traffic reverted to the standard procedure which was to cease advising on each vessel's course, speed and position etc., and to leave the navigation of each vessel to those persons considered to be best able to navigate the ships; i.e., the master or officer in charge of each watch on each ship.

The Tofino Traffic routing scheme is compulsory except for those vessels which, of necessity, have to cross the lanes; i.e., when proceeding from one port to another which requires crossing the lanes. The "LARAIN" decided to cross the lanes for reasons which were neither an emergency nor a requirement and, when advising Tofino Traffic, did so in a manner which did not indicate whether the advice was in the form of an emergency, a request, or a statement of intent. The traffic regulator neither denies nor affirms the "LARAIN"s intent. However, had the regulator on duty become aware of the dangerous situation arising due to the inadequate communications between the two vessels, then an interjection could have clarified the danger to both.

12. **Radar plotting**

The radar reflector plots of the "LARAIN" and tow which were made by the "PAPU" had, by the nature of the system, been erased to allow for further use and consequently were not available during the inquiry. However, evidence provided was sufficiently complete to enable an analysis of the manoeuvres and the courses and speed of the two vessels were verifiable by using the VTS computer plot.

A radar plot requires an interval of at least 6 minutes

between observations for the plot to accurately determine a vessel's past course and speed and so to give an indication of her possible future course and speed. The "PAPU" altered course to 070°T from 034°T at 1055 and shortly after that, estimated to be at 1058, to 095°T. Had a radar plot been commenced by "PAPU" at 1058, it would have given accurate information at 1104 when the vessels were approximately 0.9 mile apart. Such information could have indicated that the "LARAIN" might not be adhering to the lane as expected but was in fact crossing it.

No radar plotting was carried out by the "LARAIN".

13. Collision Regulations and radiotelephone communications

The International Regulations for Preventing Collisions at Sea, 1972 (Collision Regulations) are recognized by all major maritime nations and have been compiled over many years drawing on the experience and expertise of many nations. The International Maritime Organization (IMO), of which Korea and Canada are both signatories, endorse the Regulations; IMO standards regarding the watchkeeping of deck departments also serve in part to expand upon the Regulations. The Regulations are separated into Section I entitled Conduct of Vessels in Any Condition of Visibility; Section II, Conduct of Vessels in Sight of One Another and Section III, Conduct of Vessels in Restricted Visibility. (see Annex)

The visibility was estimated to be some 200 m, prior to and until the collision, therefore, Sections I and III applied to both vessels.

The applicable rules are contained in the Annex to this report.

Rule 7, entitled Risk of Collision, and applicable to vessels in any condition of visibility, states in part:

> Every vessel shall use all available means appropriate to the prevailing circumstances and conditions to determine if risk of collision exists. If there is any doubt such risk shall be deemed to exist ....

Radiotelephone communications are considered to be a valuable aid in assessing the risk of collision and when used in conjunction with the Collision Regulations have, on innumerable occasions, served to confirm to vessels that the other vessel or vessels will adhere to the

Regulations as anticipated, or, due to unforeseen circumstances, the Regulations cannot be adhered to.

However, there have been occasions when the incorrect use of the R/T has led to confusion between vessels, particularly when both vessels, as in this case, were navigated in a manner not anticipated by the other.

The generally accepted practice by mariners who are in communication is to navigate their own vessels in a manner which accommodates the preferred actions of the other provided those actions fall within the requirements of the Collision Regulations. In this case, both stated their own intentions and expected the other to act accordingly without verifying the intentions of the other, which is contrary to the dictates of good seamanship.

14. **Risk of Collision, Rule 7**

Rule 7 also states:

> Proper use shall be made of radar equipment if fitted and operational, ...
>
> Assumptions shall not be made on the basis of scanty information, ...
>
> In determining if risk of collision exists the following considerations shall be among those taken into account:
>
> (i) such risk shall be deemed to exist if the compass bearing of an approaching vessel does not appreciably change,
>
> (ii) such risk may sometimes exist even when an appreciable bearing change is evident, particularly when approaching a very large vessel or a tow or when approaching a vessel at close range.

The "PAPU" used her radar to plot the "LARAIN" and tow during the initial radar contacts; however, after R/T communications had been established, the radar plotting became of secondary importance to the information which was given by R/T. After altering course and when the distance from the "LARAIN" had been reduced to some 1.8 miles, radar plots were reportedly made but no longer used; reliance for avoiding collision was then placed upon the R/T and on the visual detection of the "LARAIN"

and tow. For the 12 minutes before collision, the radar bearings between the vessels remained constant, as indicated by the R/T communications from the "LARAIN"; therefore, risk of collision was evident even if a bearing change had occurred between the "PAPU" and the tug and tow.

The "LARAIN" did not use her radar to plot the "PAPU", but relied solely upon the "PAPU" taking avoiding action in response to the stated intentions of the "LARAIN"; however, the "LARAIN" became aware of the risk of collision when observing that the radar bearing of the "PAPU" remained constant.

15. **Safe Speed, Rule 6 and Action to Avoid Collision, Rule 8**

Rule 6, which is applicable to vessels in any condition of visibility, states in part:

> Every vessel shall at all times proceed at a safe speed so that she can take proper and effective action to avoid collision and be stopped within a distance appropriate to the prevailing circumstances and conditions.

In determining a safe speed, several factors shall be taken into account.

Towing vessels run the risk of being over-run by the tow should the towing vessel reduce her speed more quickly than the towed vessel(s) forward momentum is reduced by the resistance of the water. Consequently, the "LARAIN" maintained her speed of some 8.5 knots even though the risk of collision had become apparent. The "PAPU" maintained her speed of some 13 knots believing she would overtake the "LARAIN" and her tow at a distance of some 1.0 mile.

In any event, when risk of collision arises during reduced visibility, the dictates of good seamanship require that a vessel's speed should be reduced, or the vessel stopped, and then navigated with extreme caution until danger of collision has passed.

Rule 8, also applicable to vessels in any condition of visibility and entitled Action to Avoid Collision endorses this action by stating in part:

> If necessary to avoid collision or allow more time to assess the situation, a vessel shall slacken her speed or take all way off by

stopping or reversing her means of propulsion.

16. Conduct of Vessels in Restricted Visibility, Rule 19

Rule 19 includes the requirements of Section I with added requirements for restricted visibility and;

(a) applies to vessels not in sight of one another when navigating in or near an area of restricted visibility.

(b) requires every vessel to proceed at a safe speed adapted to the prevailing circumstances and conditions of restricted visibility.

(c) requires every vessel to have due regard to the prevailing circumstances.

(d) requires a vessel, which detects by radar alone the presence of another vessel to determine if a close-quarters situation is developing and/or risk of collision exists.

(e) if, necessary, take all her way off and in any event navigate with extreme caution until danger of collision is over.

Both vessels considered their speeds to be safe, the "LARAIN" due to the necessity to control her tow, the "PAPU" due to her 4.5 knots greater speed being considered necessary for safe overtaking. Both vessels had their engines ready for immediate manoeuvre. In the case of both vessels, the means of detection was by radar alone and a risk of collision existed; however, avoiding action was not taken in ample time by either. The alteration of course to port by the "PAPU" would have been correct had the "LARAIN" kept to the starboard side of the traffic lane as the "PAPU" expected. The alteration of course to port by the "LARAIN" did not comply with the Rule, being an alteration towards a vessel abaft the beam.

Neither vessel reportedly heard the fog signals of the other, however, both realized that a close-quarters situation was arising. The "PAPU" did not comply with the Rule by maintaining her speed.

17. Look-out, Rule 5

Rule 5, which is applicable in any condition of visibi-

lity, states:

> Every vessel shall at all times maintain a proper look-out by sight and hearing as well as by all available means .....

The Recommended Code of Nautical Procedures and Practices, 1985, is issued by the Canadian Coast Guard and is based upon the Regulations and Resolutions adopted at the IMO, International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978. These Recommendations for the most part expand upon the Collision Regulations and with reference to a look-out and to restricted visibility state in part as follows:

> Look-out
>
> In addition to maintaining a proper look-out for the purpose of fully appraising the situation and the risk of collision, stranding and other dangers to navigation, the duties of the look-out shall include the detection of ships or aircraft in distress, shipwrecked persons, wrecks and debris. In maintaining a look-out the following shall be observed:
>
> (a) the look-out must be able to give full attention to the keeping of a proper look-out.....
>
> (b) the duties of the look-out and helmsman are separate .....
>
> Restricted Visibility
>
> When restricted visibility is encountered or expected, the first responsibility of the officer of the watch is to comply with the relevant rules of the applicable regulations for preventing collisions at sea, ... In addition, he should:
>
> (a) inform the master
> (b) post a proper look-out and helmsman and, in congested waters, revert to hand steering immediately;
> (c) exhibit navigation lights;
> (d) operate and use the radar.
>
> It is important that the officer of the watch

should know the handling characteristics of his ship, including its stopping distance.

The "PAPU" had not posted a designated look-out but the boatswain had been instructed to keep a look-out from the bows of the vessel if his deck work duties allowed; but he did not have the opportunity to keep a look-out.

The "LARAIN" did not post a designated look-out and when about to cross the traffic lanes and into possibly congested waters did not post a designated helmsman and revert to hand steering.

Reportedly, both vessels exhibited the regulatory navigation lights.

18. <u>Sound Signals in Restricted Visibility, Rule 35</u>

Rule 35 states in part as follows:

> In or near an area of restricted visibility, whether by day or night, the signals prescribed in this Rule shall be used as follows:
>
> (a) A power-driven vessel making way through the water shall sound at intervals of not more than 2 minutes one prolonged blast...
>
> (c) A vessel engaged in towing or pushing another vessel ....
>
> ... sound at intervals of not more than 2 minutes three blasts in succession, namely one prolonged followed by two short blasts.

Reportedly, both vessels were sounding the appropriate signals and both had their wheel-house doors and windows open to facilitate sight and hearing; however, neither reported hearing the signals of the other.

In the case of the "LARAIN", the navigation bridge is immediately adjacent to the engine-room with the consequent high noise level generated by the diesel machinery. Reportedly, the noise level on the bridge precludes the hearing of all but very close sound signals.

In the case of the "PAPU", although there is some engine noise level on the navigation bridge, this does not prevent sound signals from being heard, particularly when the look-out is outside of the wheel-house;

however, reportedly, none were heard.

19. Traffic Separation Schemes, Rule 10

Rule 10 of the Regulations refers to the conduct of vessels navigating Traffic Separation Schemes. Since the promulgation of the Vessel Traffic Services Regulations made pursuant to the Canada Shipping Act, (see Annex), participation and compliance with the prescribed rules and procedures of the Regulations is compulsory for vessels over 20 m in length, which includes both the "LARAIN" and the "PAPU". Rule 10 states in part:

> This Rule applies to traffic separation schemes adopted by the Organization and set out in Schedule II.
>
> A vessel using a traffic separation scheme shall:
>
> (i) proceed in the appropriate traffic lane in the general direction of traffic flow for that lane,
>
> (ii) so far as practicable keep clear of a traffic separation line or separation zone,
>
> (iii) normally join or leave a traffic lane at the termination of the lane, but when joining or leaving from either side shall do so at as small an angle to the general direction of traffic flow as practicable.
>
> (c) A vessel shall so far as practicable avoid crossing traffic lanes, but if obliged to do so shall cross as nearly as practicable at right angles to the general direction of traffic flow.
>
> (d) Inshore traffic zones shall not normally be used by through traffic which can safely use the appropriate traffic lane within the adjacent traffic separation scheme. However, vessels of less than 20 metres in length and sailing vessels may under all circumstances use inshore traffic zones.
>
> (e) A vessel other than a crossing vessel or a vessel joining or leaving a lane shall not normally enter a separation zone or cross a separation line except

(i) in cases of emergency to avoid immediate danger, or

(ii) to engage in fishing within a separation zone.

(f) A vessel navigating in areas near the terminations of traffic separation schemes shall do so with particular caution...

(h) A vessel not using a traffic separation scheme shall avoid it by as wide a margin as practicable ....

The "LARAIN" decided to cross the traffic lanes, although she was not obliged to do so inasmuch as her destination was serviced by the traffic separation scheme. When crossing, the angle of crossing was made on a course of 075°T which was at an angle of 41° to the general direction of the traffic flow and not at right angles; i.e., 90°.

The area of navigation was close to the terminations of the separation scheme, requiring particular caution.

The approach from the westward could have allowed the "LARAIN" to close the south coast of Vancouver Island to the northward and therefore clear of the separation scheme.

The "PAPU" crossed into the separation zone while attempting to avoid immediate danger.

20. Charts and Publications Regulations

The "PAPU" carried and appropriately used all of the applicable charts and publications as required by the Regulations.

The "LARAIN" did not carry a copy of the Canadian Annual Notices to Mariners; neither did she have a copy of the VTS Regulations. The chart in use was Canadian Hydrographic Chart number 3607 which was last corrected in 1979 and taken out of service in 1981.

The annual edition of the Canadian Notices to Mariners includes a comprehensive description together with the Regulations covering Traffic Separation Schemes, as does the VTS Regulations; however, the latter is not required to be carried by Regulation.

In this regard the Regulations require that every vessel should carry the latest editions of charts, corrected to date and of at least 75% of the scale of the locally available charts, as well as the necessary tide tables, Sailing Directions, etc. (see Annex)

21. **"LARAIN" reason for crossing the traffic lane**

The "LARAIN" decided to proceed to the waters off the south coast of Vancouver Island when reduced visibility was encountered, the reasons for that decision being given as follows:

(a) Being of relatively slow speed and therefore subject to being overtaken by other vessels, it was thought that navigating while outside of the lanes would present less navigational problems and would therefore be safer.

(b) It was calculated from the appropriate Canadian Hydrographic Service, Tide and Current Tables, Volume 5, that the tide would turn at approximately 1236 producing an ebb tide (current) in a westerly direction of some 0.7 knots, varying up to 1.7 knots, until the early hours of the following morning. The adverse tidal current would be of less strength at the sides of the strait than in the more centrally positioned traffic lane and therefore less likely to impede progress.

(c) It is the usual practice for Canadian tugs and their tows to navigate the northern side of the strait when bound for Canadian ports, which are to the north of the strait.

It should be noted that the position from which the "LARAIN" had departed was some 90 miles to the west of the strait and, had the decision been made earlier, passage planning could have allowed the approaches to have been made from a position north of the traffic lanes thus avoiding the need to cross them.

22. **Cooperative Vessel Traffic Management System, (CVTMS)**

The establishment of the Traffic Separation Scheme for the Juan de Fuca Strait required inbound vessels to stay in a lane to the south of a separation zone, which is in American waters, and outbound vessels to stay in a lane to the north of the zone, which is in Canadian waters. In 1979 an agreement was entered into by the United States and Canada to establish the CVTMS and, in

accordance with the agreement, Tofino VTS Centre provides vessel traffic services to vessels west of longitude 124°40.0'W while the United States Coast Guard provides that service to vessels which are to the eastward.

The "LARAIN" and "PAPU" were involved in the collision in position longitude 124°39.9'W while in United States waters and a time when Tofino Traffic was about to hand responsibility for the vessels to their U.S. counterparts. Consideration has been given to these factors having contributed to the collision, however, they have been discounted as the events leading to the collision occurred well within the Canadian area of responsibility for vessel traffic services.

Excerpts from the Canadian Notices to Mariners covering the routing of ships together with the CVTMS are contained in the Annex to this report.

23. Crew qualifications and experience

"PAPU"

The master held a Korean certificate as master of a foreign going vessel and had 18 years seafaring experience. He had been master of various ships for the last 6 years, including master of the "PAPU" for the last 5 months. He had previously navigated the Juan de Fuca Strait four times as master.

The third mate held a Korean third mate's certificate and was a graduate of a Korean Marine College.' He had 10½ months seafaring experience, the last 2½ months as third mate on the "PAPU". His navigational duties consisted of keeping the 8-12 watch while accompanied and under the guidance of the master.

The helmsman held no marine qualifications nor was he required to by regulation. He had 10 years seafaring experience, the last 5 months on the "PAPU".

"LARAIN"

The master held a Canadian Home Trade Masters' Certificate (350 ton) and had 37 years seafaring experience. He had held command of small vessels for 33 years, the last 24 of which in command of tugs. During that time he had navigated the Juan de Fuca Strait some 100 times.

24. Fatigue factor

Fatigue has been considered as to whether it was a contributing factor in the collision, however, the master and third mate of the "PAPU" had commenced the 8-12 watch at 0800 that morning after having been off duty since midnight. They had reportedly slept well and did not consider fatigue to be a factor in the collision. Similarly, the master of the "LARAIN" had commenced his watch at 0600, having been off duty since midnight, and had reportedly slept well.

Findings

The Korean registered bulk carrier "PAPU" and two barges which were in tow of the Canadian registered tug "LARAIN" collided while the "PAPU" was overtaking in the Juan de Fuca Strait, in United States waters, and having traversed an area serviced by a Canadian Vessel Traffic Services Centre.

The collision occurred in a compulsory Traffic Separation System in fine weather conditions during daylight hours but in reduced visibility due to fog.

It would appear that the collision occurred due to the following contributing factors:

Both Vessels

- having established R/T communications, did not ensure that the other vessel fully understood their intent and did not reach a mutual agreement as to a mode of safe passing (overtaking).

The "PAPU"

- did not properly assess the risk of collision, especially by not fully utilizing the radar;
- made an assumption that the "LARAIN" would follow the traffic lane;
- did not slacken speed or take all way off to allow more time to assess the situation;
- did not take avoiding action in ample time; and
- did not post a look-out.

The "LARAIN"

- did not ensure that the "PAPU" realised her intent was to cross the traffic lane;
- crossed a compulsory traffic lane at an angle less than the recommended 90° and at a position requiring additional caution;
- did not properly assess the risk of collision, especially by not fully utilizing the radar;
- did not take appropriate avoiding action;
- did not slacken speed or take all way off to allow time to assess the situation;
- made an assumption the "PAPU" would alter course to starboard;
- did not post a look-out; and
- did not post a helmsman and revert to hand steering.

Tofino VTS

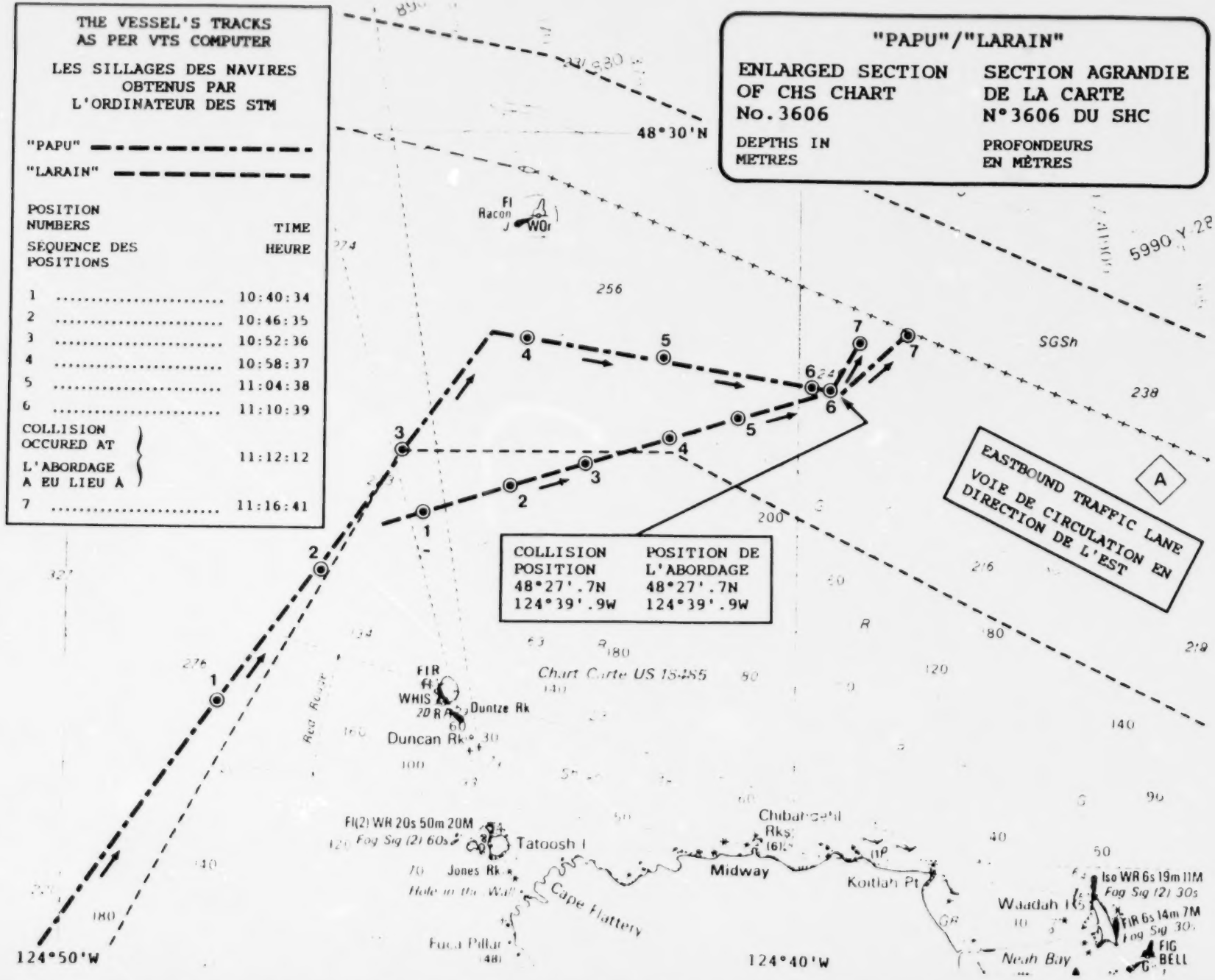
- did not advise the "LARAIN" of her obligations related to crossing traffic lanes while navigating in a compulsory traffic scheme;
- did not evaluate the communications between the vessels as leading to a risk of collision, and
- did not advise the "PAPU" of the intentions of the "LARAIN" to cross the lane.

Other Findings

Radiotelephone communications between the vessels were rendered less effective due to their use of non-standard English terminology.

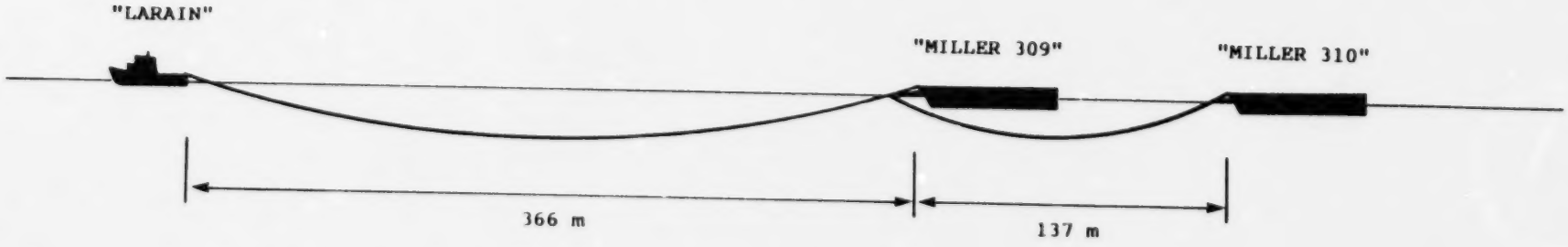
The "LARAIN" did not hold a valid Steamship Inspection certificate.

MARINE CASUALTY INVESTIGATIONS
TRANSPORT CANADA
110 O'CONNOR STREET
OTTAWA, ONTARIO
K1A 0N5


THE VESSEL'S TRACKS
AS PER VTS COMPUTER
LES SILLAGES DES NAVIRES
OBTENUS PAR
L'ORDINATEUR DES STM
"PAPU"
"LARAIN"
POSITION NUMBERS
SEQUENCE DES POSITIONS
TIME
HEURE
1 ..... 10:40:34
2 ..... 10:46:35
3 ..... 10:52:36
4 ..... 10:58:37
5 ..... 11:04:38
6 ..... 11:10:39
COLLISION OCCURED AT
L'ABORDAGE A EU LIEU A
11:12:12
7 ..... 11:16:41
"PAPU"/"LARAIN"
ENLARGED SECTION OF CHS CHART No. 3606
SECTION AGRANDIE DE LA CARTE N° 3606 DU SHC
DEPTHS IN METRES
PROFONDEURS EN MÈTRES
COLLISION POSITION
POSITION DE L'ABORDAGE
48°27'.7N
124°39'.9W
48°27'.7N
124°39'.9W
EASTBOUND TRAFFIC LANE
VOIE DE CIRCULATION EN DIRECTION DE L'EST
A
48°30'N
124°50'W
124°40'W
Chart Carte US 15485
Duntze Rk
Duncan Rk
Tatoosh I
Jones Rk
Cape Flattery
Midway
Koitlah Pt
Waadah I
Neah Bay
Fl Racon
WHIS
FIR
Iso WR 6s 19m 11M
Fog Sig (2) 30s
FIR 6s 14m 7M
Fog Sig 30s
FIG
BELL

SKETCH INDICATING THE "LARAIN" AND TOW. ALTHOUGH NOT DRAWN ACCURATELY TO SCALE AND THE DEPTH OF TOW CATENARIES IS UNKNOWN. IT SHOWS THAT HAVING COLLIDED WITH THE PORT SIDE ASTERN OF THE "MILLER 309". THE TOW LINE WOULD BE CONTACTED AT APPROXIMATE MID-LENGTH.

CROQUIS MONTRANT LE "LARAIN" ET SA REMORQUE. MÊME SI LE SCHÉMA N'EST PAS À L'ÉCHELLE ET QU'ON IGNORE LA PROFONDEUR DES CHAÎNETTES, ON CONSTATE QUE LE CÔTÉ BÂBORD ARRIÈRE DU "MILLER 309" A ÉTÉ HEURTÉ. LE CÂBLE DE REMORQUE A ÉTÉ ACCROCHÉ À MI-LONGUEUR.



NOTE: CATENARY = THE CURVE ASSUMED BY A CHAIN OR ROPE HANGING FREELY BETWEEN TWO POINTS OF SUPPORT.

NOTA: CHAÎNETTE = COURBE FORMÉE PAR UN FIL FLEXIBLE ET HOMOGÈNE, SUSPENDU PAR SES DEUX EXTRÉMITÉS.

ANNEX I

APPENDICE I

REGULATIONS FOR THE PREVENTION OF COLLISIONS

RÈGLEMENT POUR PRÉVENIR LES ABORDAGES

Short Title

1. These Regulations may be cited as the *Collision Regulations*.

Titre abrégé

1. Le présent règlement peut être cité sous le titre: *Règlement sur les abordages*.

PART B—STEERING AND SAILING RULES

PARTIE B—RÈGLES DE BARRE ET DE ROUTE

SECTION I—CONDUCT OF VESSELS IN ANY CONDITION OF VISIBILITY

SECTION I—CONDUITE DES NAVIRES DANS TOUTES LES CONDITIONS DE VISIBILITÉ

RULE 4

Application

Rules in this Section apply in any condition of visibility.

RÈGLE 4

Champ d'application

Les règles de la présente section s'appliquent dans toutes les conditions de visibilité.

RULE 5

Look-out

Every vessel shall at all times maintain a proper look-out by sight and hearing as well as by all available means appropriate in the prevailing circumstances and conditions so as to make a full appraisal of the situation and of the risk of collision.

RÈGLE 5

Veille

Tout navire doit en permanence assurer une veille visuelle et auditive appropriée, en utilisant également tous les moyens disponibles qui sont adaptés aux circonstances et conditions existantes, de manière à permettre une pleine appréciation de la situation et du risque d'abordage.

RULE 6

Safe Speed—International

Every vessel shall at all times proceed at a safe speed so that she can take proper and effective action to avoid collision and be stopped within a distance appropriate to the prevailing circumstances and conditions.

In determining a safe speed the following factors shall be among those taken into account:

(*a*) By all vessels:

(i) the state of visibility,

(ii) the traffic density including concentrations of fishing vessels or any other vessels,

(iii) the manoeuvrability of the vessel with special reference to stopping distance and turning ability in the prevailing conditions,

(iv) at night the presence of background light such as from shore lights or from back scatter of her own lights,

(v) the state of wind, sea and current, and the proximity of navigational hazards,

(vi) the draught in relation to the available depth of water.

RÈGLE 6

Vitesse de sécurité—International

Tout navire doit maintenir en permanence une vitesse de sécurité telle qu'il puisse prendre des mesures appropriées et efficaces pour éviter un abordage et pour s'arrêter sur une distance adaptée aux circonstances et conditions existantes.

Les facteurs suivants doivent notamment être pris en considération pour déterminer la vitesse de sécurité:

a) Par tous les navires:

(i) la visibilité;

(ii) la densité du trafic et notamment les concentrations de navires de pêche ou de tous autres navires;

(iii) la capacité de manœuvre du navire et plus particulièrement sa distance d'arrêt et ses qualités de giration dans les conditions existantes;

(iv) de nuit, la présence d'un arrière-plan lumineux tel que celui créé par des feux côtiers ou une diffusion de la lumière des propres feux du navire;

(v) l'état du vent, de la mer et des courants et la proximité de risques pour la navigation;

(vi) le tirant d'eau en fonction de la profondeur d'eau disponible.

(b) Additionally, by vessels with operational radar:

(i) the characteristics, efficiency and limitations of the radar equipment,

(ii) any constraints imposed by the radar range scale in use,

(iii) the effect on radar detection of the sea state, weather and other sources of interference,

(iv) the possibility that small vessels, ice and other floating objects may not be detected by radar at an adequate range,

(v) the number, location and movement of vessels detected by radar,

(vi) the more exact assessment of the visibility that may be possible when radar is used to determine the range of vessels or other objects in the vicinity.

Safe Speed—Canadian Modifications

(c) In the Canadian waters of a roadstead, harbour, river, lake or inland waterway, every vessel passing another vessel or work that includes a dredge, tow, grounded vessel or wreck shall proceed with caution at a speed that will not adversely affect the vessel or work being passed, and shall take into consideration applicable information contained in any Notice to Mariners or Notice to Shipping.

(d) For the purpose of paragraph (c), where it cannot be determined with certainty that a passing vessel will not adversely affect another vessel or work described in that paragraph, the passing vessel shall proceed with caution at the minimum speed at which she can be kept on her course.

(e) In the Canadian waters of a roadstead, harbour, river, lake or inland waterway, where abnormal water levels, ice conditions or a casualty to a vessel or aid to navigation may

(i) make navigation difficult or hazardous,

(ii) cause damage to property, or

(iii) block the navigational channel,

every vessel shall navigate with caution and shall take into consideration the applicable information contained in any Notice to Mariners or Notice to Shipping with respect to speed, routing and anchorage.

b) De plus, par les navires qui utilisent un radar:

(i) les caractéristiques, l'efficacité et les limites d'utilisation de l'équipement radar;

(ii) les limitations qui résultent de l'échelle de portée utilisée sur le radar;

(iii) l'effet de l'état de la mer, des conditions météorologiques et d'autres sources de brouillage sur la détection au radar;

(iv) le fait que les petits bâtiments, les glaces et d'autres objets flottants peuvent ne pas être décelés par le radar à une distance suffisante;

(v) le nombre, la position et le mouvement des navires détectés par le radar;

(vi) le fait qu'il est possible d'apprécier plus exactement la visibilité lorsque le radar est utilisé pour déterminer la distance des navires et des autres objets situés dans les parages.

Vitesse de sécurité—Modifications canadiennes

c) Dans les eaux canadiennes d'une rade, d'un port, d'un cours d'eau, d'un lac ou d'une voie navigable intérieure, tout navire qui dépasse un autre navire ou un ouvrage, notamment une drague, un train de remorque, un navire échoué ou une épave, doit passer prudemment à une vitesse qui n'aura pas d'effet néfaste sur le navire ou l'ouvrage dépassé et il doit tenir compte des renseignements applicables contenus dans un Avis aux navigateurs ou un Avis à la navigation.

d) Lorsque, aux fins de l'alinéa c), il est impossible de déterminer avec certitude que le passage d'un navire n'aura pas d'effet néfaste sur un autre navire ou sur un ouvrage décrit audit alinéa, le navire passant doit avancer prudemment à la vitesse minimale nécessaire pour le maintenir sur sa route.

e) Dans les eaux canadiennes d'une rade, d'un port, d'un cours d'eau, d'un lac ou d'une voie navigable intérieure, tout navire doit naviguer prudemment et tenir compte des renseignements applicables contenus dans un Avis aux navigateurs ou un Avis à la navigation relativement à la vitesse, à l'organisation du trafic et au mouillage, lorsqu'un niveau d'eau ou un état des glaces anormaux ou un sinistre subi par un navire ou par une aide à la navigation peuvent

(i) rendre la navigation difficile ou dangereuse,

(ii) endommager des biens; ou

(iii) bloquer le chenal servant à la navigation.

RULE 7

Risk of Collision

(a) Every vessel shall use all available means appropriate to the prevailing circumstances and conditions to determine if risk of collision exists. If there is any doubt such risk shall be deemed to exist.

(b) Proper use shall be made of radar equipment if fitted and operational, including long-range scanning to obtain early warning of risk of collision and radar plotting or equivalent systematic observation of detected objects.

(c) Assumptions shall not be made on the basis of scanty information, especially scanty radar information.

RÈGLE 7

Risque d'abordage

a) Tout navire doit utiliser tous les moyens disponibles qui sont adaptés aux circonstances et conditions existantes pour déterminer s'il existe un risque d'abordage. S'il y a doute quant au risque d'abordage, on doit considérer que ce risque existe.

b) S'il y a à bord un équipement radar en état de marche, on doit l'utiliser de façon appropriée en recourant, en particulier, au balayage à longue portée afin de déceler à l'avance un risque d'abordage, ainsi qu'au «plotting» radar ou à toute autre observation systématique équivalente des objets détectés.

c) On doit éviter de tirer des conclusions de renseignements insuffisants, notamment de renseignements radar insuffisants.

(*d*) In determining if risk of collision exists the following considerations shall be among those taken into account:

(i) such risk shall be deemed to exist if the compass bearing of an approaching vessel does not appreciably change,

(ii) such risk may sometimes exist even when an appreciable bearing change is evident, particularly when approaching a very large vessel or a tow or when approaching a vessel at close range.

RULE 8

Action to avoid Collision

(*a*) Any action taken to avoid collision shall, if the circumstances of the case admit, be positive, made in ample time and with due regard to the observance of good seamanship.

(*b*) Any alteration of course and/or speed to avoid collision shall, if the circumstances of the case admit, be large enough to be readily apparent to another vessel observing visually or by radar; a succession of small alterations of course and/or speed should be avoided.

(*c*) If there is sufficient sea room, alteration of course alone may be the most effective action to avoid a close-quarters situation provided that it is made in good time, is substantial and does not result in another close-quarters situation.

(*d*) Action taken to avoid collision with another vessel shall be such as to result in passing at a safe distance. The effectiveness of the action shall be carefully checked until the other vessel is finally past and clear.

(*e*) If necessary to avoid collision or allow more time to assess the situation, a vessel shall slacken her speed or take all way off by stopping or reversing her means of propulsion.

d) L'évaluation d'un risque d'abordage doit notamment tenir compte des considérations suivantes:

(i) il y a risque d'abordage si le relèvement au compas d'un navire qui s'approche ne change pas de manière appréciable;

(ii) un tel risque peut parfois exister même si l'on observe une variation appréciable du relèvement, particulièrement lorsque l'on s'approche d'un très grand navire, d'un train de remorque ou d'un navire qui est à courte distance.

RÈGLE 8

Manœuvre pour éviter les abordages

a) Toute manœuvre entreprise pour éviter un abordage doit, si les circonstances le permettent, être exécutée franchement, largement à temps et conformément aux bons usages maritimes.

b) Tout changement de cap ou de vitesse, ou des deux à la fois, visant à éviter un abordage doit, si les circonstances le permettent, être assez important pour être immédiatement perçu par tout navire qui l'observe visuellement ou au radar; une succession de changements peu importants de cap ou de vitesse, ou des deux à la fois, est à éviter.

c) Si le navire a suffisamment de place, le changement de cap à lui seul peut être la manœuvre la plus efficace pour éviter de se trouver en situation très rapprochée à condition que cette manœuvre soit faite largement à temps, qu'elle soit franche et qu'elle n'aboutisse pas à une autre situation très rapprochée.

d) Les manœuvres effectuées pour éviter l'abordage avec un autre navire doivent être telles qu'elles permettent de passer à une distance suffisante. L'efficacité des manœuvres doit être attentivement contrôlée jusqu'à ce que l'autre navire soit définitivement paré et clair.

e) Si cela est nécessaire pour éviter un abordage ou pour laisser plus de temps pour apprécier la situation, un navire doit réduire sa vitesse ou casser son erre en arrêtant son appareil propulsif ou en battant en arrière au moyen de cet appareil.

RULE 10

Traffic Separation Schemes—International

(*a*) This Rule applies to traffic separation schemes adopted by the Organization and set out in Schedule II.

(*b*) A vessel using a traffic separation scheme shall:

(i) proceed in the appropriate traffic lane in the general direction of traffic flow for that lane,

RÈGLE 10

Dispositifs de séparation du trafic—International

a) La présente règle s'applique aux dispositifs de séparation du trafic adoptées par l'Organisation et décrits dans l'annexe II.

b) Les navires qui naviguent à l'intérieur d'un dispositif de séparation du trafic doivent:

(i) suivre la voie de circulation appropriée dans la direction générale du trafic pour cette voie;

(ii) so far as practicable keep clear of a traffic separation line or separation zone,

(iii) normally join or leave a traffic lane at the termination of the lane, but when joining or leaving from either side shall do so at as small an angle to the general direction of traffic flow as practicable.

(c) A vessel shall so far as practicable avoid crossing traffic lanes, but if obliged to do so shall cross as nearly as practicable at right angles to the general direction of traffic flow.

(d) Inshore traffic zones shall not normally be used by through traffic which can safely use the appropriate traffic lane within the adjacent traffic separation scheme. However, vessels of less than 20 metres in length and sailing vessels may under all circumstances use inshore traffic zones.

(e) A vessel other than a crossing vessel or a vessel joining or leaving a lane shall not normally enter a separation zone or cross a separation line except

(i) in cases of emergency to avoid immediate danger, or

(ii) to engage in fishing within a separation zone.

(f) A vessel navigating in areas near the terminations of traffic separation schemes shall do so with particular caution.

(g) A vessel shall so far as practicable avoid anchoring in a traffic separation scheme or in areas near its terminations.

(h) A vessel not using a traffic separation scheme shall avoid it by as wide a margin as is practicable.

(i) A vessel engaged in fishing shall not impede the passage of any vessel following a traffic lane.

(j) A vessel of less than 20 metres in length or a sailing vessel shall not impede the safe passage of a power-driven vessel following a traffic lane.

(k) A vessel restricted in her ability to manoeuvre when engaged in an operation for the maintenance of safety of navigation in a traffic separation scheme is exempted from complying with this Rule to the extent necessary to carry out the operation.

(l) A vessel restricted in her ability to manoeuvre when engaged in an operation for the laying, servicing or picking up of a submarine cable, within a traffic separation scheme, is exempted from complying with this Rule to the extent necessary to carry out the operation.

ii) s'écarter dans toute la mesure du possible de la ligne ou de la zone de séparation du trafic;

iii) en règle générale, s'engager dans une voie de circulation ou en sortir à l'une des extrémités, mais lorsqu'ils s'y engagent ou en sortent latéralement, effectuer cette manœuvre sous un angle aussi réduit que possible par rapport à la direction générale du trafic.

c) Les navires doivent éviter autant que possible de couper les voies de circulation mais, s'ils y sont obligés, ils doivent autant que possible le faire perpendiculairement à la direction générale du trafic.

d) Les zones de navigation côtières ne doivent pas normalement être utilisées par le trafic direct, qui peut en toute sécurité utiliser la voie de circulation appropriée du dispositif adjacent de séparation du trafic. Toutefois, les navires de longueur inférieure à 20 mètres et les navires à voile peuvent, dans toutes les circonstances, utiliser les zones de navigation côtières.

e) Un navire autre qu'un navire qui coupe un dispositif ou qu'un navire qui s'engage dans une voie de circulation ou qui en sort ne doit normalement pas pénétrer dans une zone de séparation ou franchir une ligne de séparation sauf:

i) en cas d'urgence, pour éviter un danger immédiat; ou

ii) pour pêcher dans une zone de séparation.

f) Les navires qui naviguent dans des zones proches des extrémités d'un dispositif de séparation du trafic doivent le faire avec une vigilance particulière.

g) Les navires doivent éviter, dans toute la mesure du possible, de mouiller à l'intérieur d'un dispositif de séparation du trafic ou dans les zones proches de ses extrémités.

h) Les navires qui n'utilisent pas un dispositif de séparation du trafic doivent s'en écarter aussi largement que possible.

i) Les navires en train de pêcher ne doivent pas gêner le passage des navires qui suivent une voie de circulation.

j) Les navires de longueur inférieure à 20 mètres ou les navires à voile ne doivent pas gêner le passage des navires à propulsion mécanique qui suivent une voie de circulation.

k) Un navire qui a une capacité de manœuvre restreinte lorsqu'il effectue une opération destinée au maintien de la sécurité de la navigation dans un dispositif de séparation du trafic est dispensé de satisfaire à la présente règle dans la mesure nécessaire pour effectuer l'opération.

l) Un navire qui a une capacité de manœuvre restreinte lorsqu'il effectue une opération en vue de poser, de réparer ou de relever un câble sous-marin à l'intérieur d'un dispositif de séparation du trafic, est dispensé de satisfaire à la présente règle dans la mesure nécessaire pour effectuer l'opération.

(*m*) Subject to paragraphs (*o*) and (*p*), paragraphs (*b*) to (*l*) apply to any routing system set out in Schedule III.

(*n*) Each route within a routing system set out in an item of Column I of Schedule III that is shown on the charts described in Columns II and III of that item shall be used by every power-driven vessel of more than 20 metres in length that can safely proceed to its destination by that route.

(*o*) Paragraphs (*b*), (*c*) and (*h*) do not apply to a vessel engaged in fishing with nets, lines, trawls, trolling lines or other fishing apparatus in or near a routing system located in Canadian waters or fishing zones.

(*p*) Paragraphs (*b*), (*c*), (*e*) and (*h*) do not apply to a vessel engaged in laying, servicing or picking up a navigation mark, submarine cable or pipeline, dredging, surveying, underwater operations or launching or recovering aircraft in or near a routing system located in Canadian waters or fishing zones, where that vessel

(i) does not prevent other vessels that use the route from navigating safely,

(ii) identifies herself to approaching vessels and informs them of the location and nature of the operation and of her intentions, and

(iii) informs the Department, as soon as possible before the commencement of the operation of

(A) the nature, location and duration of the operation, and

(B) any cautionary advice necessary concerning the operation.

(*q*) A vessel making a transatlantic voyage shall, as far as practicable, avoid crossing the Grand Banks of Newfoundland north of latitude 43° north.

SECTION III—CONDUCT OF VESSELS IN RESTRICTED VISIBILITY

RULE 19

Conduct of Vessels in Restricted Visibility

(*a*) This Rule applies to vessels not in sight of one another when navigating in or near an area of restricted visibility.

(*b*) Every vessel shall proceed at a safe speed adapted to the prevailing circumstances and conditions of restricted visibility. A power-driven vessel shall have her engines ready for immediate manoeuvre.

(*c*) Every vessel shall have due regard to the prevailing circumstances and conditions of restricted visibility when complying with the Rules of Section I of this Part.

(*d*) A vessel which detects by radar alone the presence of another vessel shall determine if a close-quarters situation is developing and/or risk of collision exists. If so, she shall take avoiding action in ample time, provided that when such action consists of an alteration of course, so far as possible the following shall be avoided:

m) Sous réserve des alinéas *o*) et *p*), les alinéas *b*) à *l*) s'appliquent à tout système d'organisation du trafic énuméré à l'annexe III.

n) Tout navire à propulsion mécanique d'une longueur supérieure à 20 mètres qui peut en toute sécurité se rendre à destination par l'une des routes d'un système d'organisation du trafic prévu à la colonne I de l'annexe III et figurant dans les cartes indiquées aux colonnes II et III doit emprunter ladite route.

o) Les alinéas *b*), *c*) et *h*) ne s'appliquent pas à un navire en train de pêcher avec des filets, des lignes, des chaluts, des lignes traînantes ou avec tout autre engin de pêche, à l'intérieur ou à proximité d'un système d'organisation du trafic situé dans les eaux ou les zones de pêche canadiennes.

p) Les alinéas *b*), *c*), *e*) et *h*) ne s'appliquent pas à un navire en train d'installer, d'entretenir ou de repêcher une marque de navigation, un câble sous-marin ou un pipeline, d'effectuer un dragage, des relevés ou des activités sous-marines, ou lorsque le décollage ou l'appontage d'un aéronef s'effectue depuis ce navire, à l'intérieur ou à proximité d'un système d'organisation du trafic dans les eaux ou zones de pêche canadiennes, lorsque ce navire

(i) n'empêche pas les navires utilisant cette route de naviguer en toute sécurité,

(ii) s'identifie aux navires qui approchent et les informe de l'emplacement et de la nature de son activité et ses intentions,

(iii) informe le ministère, le plus tôt possible avant le début de l'activité,

(A) de la nature, de l'emplacement et de la durée de l'activité, et

(B) de tout avertissement nécessaire concernant l'activité.

q) Un navire effectuant un voyage transatlantique doit, dans la mesure du possible, éviter de traverser les Grands bancs de Terre-Neuve, au nord de 43° de latitude nord.

SECTION III—CONDUITE DES NAVIRES PAR VISIBILITÉ RÉDUITE

RÈGLE 19

Conduite des navires par visibilité réduite

a) La présente règle s'applique aux navires qui ne sont pas en vue les uns des autres et qui naviguent à l'intérieur ou à proximité de zones de visibilité réduite.

b) Tout navire doit naviguer à une vitesse de sécurité adaptée aux circonstances existantes et aux conditions de visibilité réduite. Les navires à propulsion mécanique doivent tenir leurs machines prêtes à manœuvrer immédiatement.

c) Tout navire, lorsqu'il applique les règles de la section I de la présente partie, doit tenir dûment compte des circonstances existantes et des conditions de visibilité réduite.

d) Un navire qui détecte au radar seulement la présence d'un autre navire doit déterminer si une situation très rapprochée est en train de se créer et/ou si un risque d'abordage existe. Dans ce cas, il doit prendre largement à temps des mesures pour éviter cette situation; toutefois, si ces mesu-

(i) an alteration of course to port for a vessel forward of the beam, other than for a vessel being overtaken,

(ii) an alteration of course towards a vessel abeam or abaft the beam.

(e) Except where it has been determined that a risk of collision does not exist, every vessel which hears apparently forward of her beam the fog signal of another vessel, or which cannot avoid a close-quarters situation with another vessel forward of her beam, shall reduce her speed to the minimum at which she can be kept on her course. She shall if necessary take all her way off and in any event navigate with extreme caution until danger of collision is over.

res consistent en un changement de cap, il convient d'éviter, dans la mesure du possible, les manœuvres suivantes.

(i) un changement de cap sur bâbord dans le cas d'un navire qui se trouve sur l'avant du travers, sauf si ce navire est en train d'être rattrapé;

(ii) un changement de cap en direction d'un navire qui vient par le travers ou sur l'arrière du travers.

e) Sauf lorsqu'il a été établi qu'il n'existe pas de risque d'abordage, tout navire qui entend, dans une direction qui lui paraît être sur l'avant du travers, le signal de brume d'un autre navire, ou qui ne peut éviter une situation très rapprochée avec un autre navire situé sur l'avant du travers, doit réduire sa vitesse au minimum nécessaire pour maintenir son cap. Il doit, si nécessaire, casser son erre et, en toutes circonstances, naviguer avec une extrême précaution jusqu'à ce que le risque d'abordage soit passé.

RULE 35

Sound Signals in Restricted Visibility—International

In or near an area of restricted visibility, whether by day or night, the signals prescribed in this Rule shall be used as follows:

(a) A power-driven vessel making way through the water shall sound at intervals of not more than 2 minutes one prolonged blast.

(b) A power-driven vessel underway but stopped and making no way through the water shall sound at intervals of not more than 2 minutes two prolonged blasts in succession with an interval of about 2 seconds between them.

(c) A vessel not under command, a vessel restricted in her ability to manoeuvre, a vessel constrained by her draught, a sailing vessel, a vessel engaged in fishing and a vessel engaged in towing or pushing another vessel shall, instead of the signals prescribed in paragraph (a) or (b) of this Rule, sound at intervals of not more than 2 minutes three blasts in succession, namely one prolonged followed by two short blasts.

(d) A vessel engaged in fishing, when at anchor, and a vessel restricted in her ability to manoeuvre when carrying out her work at anchor, shall instead of the signals prescribed in paragraph (g) of this Rule sound the signal prescribed in paragraph (c) of this Rule.

(e) A vessel towed or if more than one vessel is towed the last vessel of the tow, if manned, shall at intervals of not more than 2 minutes sound four blasts in succession, namely one prolonged followed by three short blasts. When practicable, this signal shall be made immediately after the signal made by the towing vessel.

(f) When a pushing vessel and a vessel being pushed ahead are rigidly connected in a composite unit they shall be regarded as a power-driven vessel and shall give the signals prescribed in paragraph (a) or (b) of this Rule.

RÈGLE 35

Signaux sonores par visibilité réduite—International

Tant de jour que de nuit, à l'intérieur ou à proximité d'une zone où la visibilité est réduite, les signaux prescrits par la présente règle doivent être utilisés comme suit:

a) Un navire à propulsion mécanique ayant de l'erre doit faire entendre un son prolongé à des intervalles ne dépassant pas 2 minutes.

b) Un navire à propulsion mécanique faisant route, mais stoppé et n'ayant pas d'erre, doit faire entendre, à des intervalles ne dépassant pas 2 minutes, deux sons prolongés séparés par un intervalle de 2 secondes environ.

c) Un navire qui n'est pas maître de sa manœuvre, un navire à capacité de manœuvre restreinte, un navire handicapé par son tirant d'eau, un navire à voile, un navire en train de pêcher, et un navire qui est en remorque ou en pousse un autre doivent émettre, au lieu des signaux prescrits aux paragraphes a) ou b) de la présente règle, trois sons consécutifs, à savoir un son prolongé suivi de deux sons brefs, à des intervalles ne dépassant pas 2 minutes.

d) Un navire en train de pêcher, lorsqu'il est au mouillage, et un navire à capacité de manœuvre restreinte qui procède à ses travaux au mouillage doivent émettre, au lieu des signaux prescrits à l'alinéa g) de la présente règle, le signal prescrit à l'alinéa c) de la présente règle.

e) Un navire remorqué ou, s'il en est remorqué plus d'un, le dernier navire du convoi doit, s'il a un équipage à bord, faire entendre, à des intervalles ne dépassant pas 2 minutes, quatre sons consécutifs, à savoir un son prolongé suivi de trois sons brefs. Lorsque cela est possible, ce signal doit être émis immédiatement après le signal du navire remorqueur.

f) Un navire en train de pousser et un navire poussé en avant reliés par un raccordement rigide de manière à former une unité composite doivent être considérés comme un navire à propulsion mécanique et doivent faire entendre les signaux prescrits aux paragraphes a) ou b) de la présente règle.

(*g*) A vessel at anchor shall at intervals of not more than one minute ring the bell rapidly for about 5 seconds. In a vessel of 100 metres or more in length the bell shall be sounded in the forepart of the vessel and immediately after the ringing of the bell the gong shall be sounded rapidly for about 5 seconds in the after part of the vessel. A vessel at anchor may in addition sound three blasts in succession, namely one short, one prolonged and one short blast, to give warning of her position and of the possibility of collision to an approaching vessel.

(*h*) A vessel aground shall give the bell signal and if required the gong signal prescribed in paragraph (*g*) of this Rule and shall, in addition, give three separate and distinct strokes on the bell immediately before and after the rapid ringing of the bell. A vessel aground may in addition sound an appropriate whistle signal.

(*i*) A vessel of less than 12 metres in length shall not be obliged to give the above-mentioned signals but, if she does not, shall make some other efficient sound signal at intervals of not more than 2 minutes.

(*j*) A pilot vessel when engaged on pilotage duty may in addition to the signals prescribed in paragraph (*a*), (*b*) or (*g*) of this Rule sound an identity signal consisting of four short blasts.

Sound Signals in Restricted Visibility—Canadian Modification

(*k*) Notwithstanding paragraph (*i*), in the Canadian waters of a roadstead, harbour, river, lake or inland waterway, a vessel that is

(i) less than 12 metres in length,

(ii) built or converted for the purpose of pushing or pulling any floating object, and

(iii) not located within a recognized mooring, storage or booming area

shall sound the signals prescribed for a vessel of 12 metres or more in length.

g) Un navire au mouillage doit sonner la cloche rapidement pendant 5 secondes environ, à des intervalles ne dépassant pas une minute. À bord d'un navire de longueur égale ou supérieure à 100 mètres, on doit sonner la cloche sur la partie avant du navire et, immédiatement après, sonner rapidement le gong pendant 5 secondes environ sur la partie arrière. Un navire au mouillage peut en outre faire entendre trois sons consécutifs, à savoir un son bref suivi d'un son prolongé et d'un son bref, pour signaler sa position et la possibilité d'un abordage à un navire qui s'approche.

h) Un navire échoué doit sonner la cloche et, en cas de besoin, faire entendre le gong, ainsi qu'il est prescrit à l'alinéa *g*) de la présente règle. De plus, il doit faire entendre trois coups de cloche séparés et distincts immédiatement avant et après avoir fait entendre la sonnerie rapide de la cloche. De plus, un navire échoué peut émettre au sifflet un signal approprié.

i) Un navire de longueur inférieure à 12 mètres n'est pas tenu de faire entendre les signaux mentionnés ci-dessus, mais lorsqu'il ne le fait pas, il doit faire entendre un autre signal sonore efficace à des intervalles ne dépassant pas 2 minutes.

j) Un bateau-pilote en service de pilotage peut, outre les signaux prescrits aux alinéas *a*), *b*) ou *g*) de la présente règle, faire entendre un signal d'identification consistant en quatre sons brefs.

Signaux sonores par visibilité réduite—Modification canadienne

k) Nonobstant l'alinéa *i*), dans les eaux canadiennes d'une rade, d'un port, d'un cours d'eau, d'un lac ou d'une voie navigable intérieure, un navire

(i) de moins de 12 mètres de longueur,

(ii) construit ou converti en vue de pousser ou de tirer un objet flottant, et

(iii) ne se trouvant pas dans une aire connue de mouillage, d'entreposage ou de flottage,

doit émettre les signaux sonores prescrits pour un navire de 12 mètres ou plus de longueur.

ANNEX II

RECOMMENDED CODE OF NAUTICAL PROCEDURES AND PRACTICES TO BE FOLLOWED BY PERSONS ON BOARD SHIPS IN ORDER TO ENSURE SAFETY AND POLLUTION PREVENTION

PART I

BASIC PRINCIPLES TO BE OBSERVED IN KEEPING A NAVIGATIONAL WATCH

9. Look-out

In addition to maintaining a proper look-out for the purpose of fully appraising the situation and the risk of collision, stranding and other dangers to navigation, the duties of the look-out shall include the detection of ships or aircraft in distress, shipwrecked persons, wrecks and debris. In maintaining a look-out the following shall be observed:

(a) the look-out must be able to give full attention to the keeping of a proper look-out and no other duties shall be undertaken or assigned which could interfere with that task;

(b) the duties of the look-out and helmsman are separate and the helmsman shall not be considered to be the look-out while steering, except in small ships where an unobstructed all-round view is provided at the steering position and there is no impairment of night vision or other impediment to the keeping of a proper look-out. The officer in charge of the watch may be the sole look-out in daylight provided that on each such occasion:

(i) the situation has been carefully assessed and it has been established without doubt that it is safe to do so;

(ii) full account has been taken of all relevant factors including, but not limited to:

- state of weather
- visibility
- traffic density
- proximity of danger to navigation
- the attention necessary when navigating in or near traffic separation schemes;

(iii) assistance is immediately available to be summoned to the bridge when any change in the situation so requires.

APPENDICE II

CODE RECOMMANDE DES METHODES ET LES PRATIQUES NAUTIQUES A SUIVRE PAR LES PERSONNES A BORD DES NAVIRES AUX FINS DE LA SECURITE ET DE LA PREVENTION DE LA POLLUTION

PARTIE I

PRINCIPES FONDAMENTAUX A OBSERVER LORS DU QUART A LA PASSERELLE

9. Veille visuelle

Les fonctions de l'homme de veille doivent consister non seulement à assurer une veille visuelle appropriée pour évaluer pleinement la situation et les risques d'abordage ou d'échouement ainsi que les autres dangers pour la navigation mais également à repérer les navires ou aéronefs en détresse, les naufrages, les épaves et les débris. Lorsque l'on assure une veille visuelle, il convient d'observer les dispositions suivantes:

a) L'homme de veille doit pouvoir consacrer toute son attention à ses fonctions et ne doit se voir confier ni entreprendre aucune fonction qui risquerait de gêner le bon exercice de cette veille.

b) Les tâches assignées à l'homme de veille et au timonier sont distinctes et l'on ne doit pas considérer le timonier comme préposé à la veille lorsqu'il est à la barre, sauf sur les navires de faible tonnage où l'on a une vue dégagée sur tout l'horizon depuis la barre et où rien ne gêne la vision nocturne ni n'entrave de quelque autre manière la veille visuelle. De jour, l'officier chargé du quart peut assurer seul la veille visuelle à condition que dans chaque cas:

i) la situation ait été attentivement évaluée et qu'il ait été établi sans doute possible que l'officier chargé du quart peut assurer seul la veille en toute sécurité;

ii) il ait été dûment tenu compte de tous les facteurs pertinents et notamment, sans que cette énumération soit limitative:

- du temps
- de la visibilité
- de la densité du trafic
- de la proximité de dangers pour la navigation

RADAR

14. The officer of the watch should use the radar when appropriate and whenever restricted visibility is encountered or expected, and at all times in congested waters having due regard to its limitations.
15. Whenever radar is in use, the officer of the watch should select an appropriate range scale, observe the display carefully and plot effectively.
16. The officer of the watch should ensure that range scales employed are changed at sufficiently frequent intervals so that echoes are detected as early as possible.
17. It should be borne in mind that small or poor echoes may escape detection.
18. The officer of the watch should ensure that plotting or systematic analysis is commenced in ample time.
19. In clear weather, whenever possible, the officer of the watch should carry out radar practice.

RESTRICTED VISIBILITY

23. When restricted visibility is encountered or expected, the first responsibility of the officer of the watch is to comply with the relevant rules of the applicable regulations for preventing collisions at sea, with particular regard to the sounding of fog signals, proceeding at a safe speed and having the engines ready for immediate manoeuvres. In addition, he should:
    (a) inform the master (see paragraph 24);
    (b) post a proper look-out and helmsman and, in congested waters, revert to hand steering immediately;
    (c) exhibit navigation lights;
    (d) operate and use the radar.

    It is important that the officer of the watch should know the handling characteristics of his ship, including its stopping distance, and should appreciate that other ships may have different handling characteristics.

– de l'attention nécessaire pour naviguer à l'intérieur ou à proximité de dispositifs de séparation du trafic;

iii) la passerelle puisse bénéficier d'une aide immédiate si un changement de situation l'exige.

RADAR

14. L'officier de quart devrait utiliser le radar lorsqu'il le juge nécessaire, chaque fois que l'on rencontre ou que l'on s'attend à rencontrer des conditions de visibilité réduite et en permanence lorsque le navire se trouve dans une zone à forte densité de trafic, en tenant dûment compte des limites d'utilisation de l'appareil.
15. Lorsqu'il utilise le radar, l'officier de quart devrait choisir une échelle de distance appropriée, observer soigneusement l'image et effectuer un pointage efficace.
16. L'officier de quart devrait veiller à changer les échelles de distance à des intervalles suffisamment rapprochés pour détecter les échos le plus tôt possible.
17. Il faudrait ne pas perdre de vue que les échos faibles ou indistincts peuvent échapper à la détection.
18. L'officier de quart devrait veiller à commencer le pointage ou l'analyse systématique largement à temps.
19. Par temps clair, l'officier de quart devrait faire des exercices radar chaque fois que cela est possible.

VISIBILITE REDUITE

23. Lorsque la visibilité est réduite ou risque d'être réduite, le premier devoir de l'officier de quart est d'observer les dispositions pertinentes des règles pour prévenir les abordages en mer appropriées en veillant notamment à émettre les signaux de brume, à avancer à une vitesse de sécurité et à tenir ses machines prêtes à manœuvrer immédiatement. Il devrait en outre:
    a) informer le capitaine (voir le paragraphe 24);
    b) prévoir une veille visuelle appropriée, poster un homme de barre et, dans des eaux encombrées, revenir immédiatement à la commande manuelle de l'appareil à gouverner;
    c) montrer les feux de navigation;
    d) faire fonctionner et utiliser le radar.

    Il est important que l'officier de quart connaisse les caractéristiques de manœuvre de son navire, et notamment sa distance d'arrêt, et qu'il ait conscience du fait que d'autres navires peuvent avoir des caractéristiques de manœuvre différentes.

CALLING THE MASTER

24. The officer of the watch should notify the master immediately in the following circumstances:

(a) if restricted visibility is encountered or expected;

(b) if the traffic conditions or the movements of other ships are causing concern;

(c) if difficulty is experienced in maintaining course;

(d) on failure to sight land, a navigation mark or to obtain soundings by the expected time;

(e) if, unexpectedly, land or a navigation mark is sighted or change in soundings occurs;

(f) on the breakdown of the engines, steering gear or any essential navigational equipment;

(g) in heavy weather if in any doubt about the possibility of weather damage;

(h) if the ship meets any hazard to navigation, such as ice or derelicts;

(i) in any other emergency or situation in which he is in any doubt.

Despite the requirement to notify the master immediately in the foregoing circumstances, the officer of the watch should in addition not hesitate to take immediate action for the safety of the ship, where circumstances so require.

CIRCONSTANCES DANS LESQUELLES L'OFFICIER DE QUART DOIT INFORMER LE CAPITAINE

24. L'officier de quart devrait immediatement informer le capitaine dans les circonstances suivantes:

a) si la visibilité est réduite ou risque d'être réduite;

b) si les conditions du trafic ou les mouvements des autres navires suscitent des inquiétudes;

c) s'il éprouve des difficultés à maintenir la route;

d) s'il n'a pas aperçu la terre ou un repère pour la navigation, ou s'il n'a pas obtenu d'échos du sondeur au moment prévu;

e) si, à un moment ou il ne s'y attendait pas, il aperçoit la terre ou un repère pour la navigation ou s'il constate des anomalies dans les sondes;

f) en cas de panne de l'appareil de propulsion, de l'appareil à gouverner ou de tout autre appareil essentiel de navigation;

g) par gros temps, si le navire risque d'être endommagé par les intempéries;

h) si le navire doit faire face à un danger quelconque pour la navigation tel que glaces ou épaves;

i) dans toute autre situation critique ou lorsqu'il existe le moindre doute.

Bien qu'il soit tenu d'informer immediatement le capitaine dans les circonstances susmentionnées, l'officier de quart ne devrait pas pour autant hésiter à prendre immédiatement des mesures pour assurer la sécurité du navire lorsque la situation l'exige.

ANNEX III

CHAPTER 1415

CANADA SHIPPING ACT

Charts and Publications Regulations

REGULATIONS REQUIRING SHIPS TO HAVE ON BOARD, MAINTAIN AND USE APPROPRIATE CHARTS, TIDE TABLES, LISTS OF LIGHTS AND OTHER NAUTICAL PUBLICATIONS

Short Title

1. These Regulations may be cited as the *Charts and Publications Regulations*.

Interpretation

2. In these Regulations,

"chart" means a nautical chart;

"catalogue" , in respect of an area to be navigated by a ship, means the chart catalogue for that area published by the Canadian Hydrographic Service;

"national authority" means the government of a country;

"nautical mile" means the international nautical mile of 1 852 m;"

"ship" includes every description of vessel used in navigation and not propelled by oars.

PART I

SHIPS IN CANADIAN WATERS AND FISHING ZONES

Application

3. (1) Subject to subsection (2), this Part applies to all self-propelled ships, other than ships of war, in

(*a*) Canadian waters south of the 60th parallel of north latitude;

(*b*) Canadian waters north of the 60th parallel of north latitude that are not within a shipping safety control zone prescribed pursuant to the *Arctic Waters Pollution Prevention Act*; and

(*c*) a fishing zone of Canada prescribed pursuant to the *Territorial Sea and Fishing Zones Act*.

Carriage of Charts and Publications

4. (1) Every ship shall have on board, in respect of each area to be navigated by the ship, at least the latest editions of the charts and the most recent issues of the publications that the ship is required by sections 5 and 6 to use.

(2) When making a voyage described in Column I of an item of the schedule, every ship shall, in addition to the charts required by subsection (1), have on board

(*a*) the latest editions of the Canadian Hydrographic Ser-

APPENDICE III

CHAPITRE 1415

LOI SUR LA MARINE MARCHANDE DU CANADA

Règlement sur les cartes et publications

RÈGLEMENT PRESCRIVANT AUX NAVIRES D'AVOIR À BORD, DE METTRE À JOUR ET D'UTILISER LES CARTES, L'ANNUAIRE DES MARÉES, LES NOMENCLATURES DES FEUX ET LES AUTRES PUBLICATIONS NAUTIQUES

Titre abrégé

1. Le présent règlement peut être cité sous le titre: *Règlement sur les cartes et publications*.

Interprétation

2. Dans le présent règlement,

«administration nationale» désigne le gouvernement d'un pays;

«catalogue» , en ce qui concerne une région où un navire est appelé à naviguer, désigne le catalogue des cartes que publie le Service hydrographique du Canada pour cette région;

«carte» désigne une carte marine;

«mille marin» désigne un mille marin international de 1 852 m;»

«navire» comprend les bâtiments de toute sorte employés à la navigation et non mus par des rames.

PARTIE I

NAVIRES DANS LES EAUX CANADIENNES ET LES ZONES DE PÊCHE DU CANADA

Application

3. (1) Sous réserve du paragraphe (2), la présente partie s'applique à tous les navires autopropulsés, sauf les navires de guerre, qui naviguent

a) dans les eaux canadiennes au sud du 60e parallèle de latitude nord;

b) dans les eaux canadiennes au nord du 60e parallèle de latitude nord, qui ne sont pas dans les limites d'une zone de contrôle de la sécurité de la navigation établie en vertu de la *Loi sur la prévention de la pollution des eaux arctiques*; et

c) dans une zone de pêche du Canada établie en vertu de la *Loi sur la mer territoriale et les zones de pêche*.

Cartes et publications

4. (1) Tout navire doit avoir à bord, pour chaque région où il est appelé à naviguer, au moins les cartes et publications les plus récentes qu'il est tenu d'utiliser selon les prescriptions des articles 5 et 6.

(2) Tout navire qui fait un voyage décrit à l'un des articles du tableau de l'annexe, dans la colonne I, doit avoir à bord, en plus des cartes prescrites par le paragraphe (1),

a) les cartes les plus récentes du Service hydrographique du Canada décrites dans la colonne II de cet article; ou

vice charts described in Column II of that item; or

(*b*) the latest editions of the charts published by any national authority that

(i) cover the same area as,

(ii) are at least as complete, accurate, intelligible and up-to-date as, and

(iii) are at a scale that is at least 75 per cent of the scale of

the latest editions of the charts described in Column II of that item.

Use of Charts

5. (1) Subject to subsection (2), every ship shall, in respect of the immediate area in which the ship is located, make proper navigational use of a chart that

(*a*) is published by a national authority;

(*b*) covers that immediate area; and

(*c*) provides a representation of the area covered by the chart that is

(i) as complete, accurate, intelligible and up-to-date as, and

(ii) at a scale that is at least 75 per cent of

the scale of the largest scale chart described in the most recent issue of the catalogue that is a chart of that immediate area.

(2) Where a ship is located

(*a*) more than 5 nautical miles from any charted feature or charted depth of water that represents a potential hazard to the ship, or

(*b*) within the area covered by a chart described in the most recent issue of the catalogue as a chart

(i) primarily intended for use of pleasure craft, or

(ii) primarily of an anchorage, a river or a harbour that is not entered by the ship,

"paragraph (1)(*c*) shall be deemed to refer to the second-largest scale chart of that immediate area as described in the most recent issue of the catalogue, if that second-largest scale chart is at a scale of not less than 1:400 000 (2.16 nautical miles to the centimetre)."

Use of Other Publications

6. (1) Subject to subsections (2) and (3), every ship shall, in respect of each area to be navigated by the ship, make proper navigational use of

(*a*) the following Canadian Government publications:

(i) tide and current tables,

(ii) sailing directions,

(iii) *List of Lights, Buoys and Fog Signals*,

(iv) where the ship is fitted with radio equipment, *Radio Aids to Marine Navigation*,

(v) *Code of Nautical Procedures and Practices, 1985*, and

(vi) where the ship in making a voyage during which ice may be encountered, *Ice Navigation in Canadian Waters*;

(*b*) the catalogue ; and

(*c*) the annual edition of Canadian *Notices to Mariners*.

b) les cartes les plus récentes publiées par une administration nationale

(i) qui représentent la même région,

(ii) qui sont au moins aussi détaillées, précises, intelligibles et récentes, et

(iii) dont l'échelle est au moins égale à 75 pour cent

par rapport aux plus récentes cartes décrites dans la colonne II de cet article.

Utilisation des cartes

5. (1) Sous réserve du paragraphe (2), tout navire doit, pour la région même où il se trouve, utiliser correctement, lorsqu'il y navigue, une carte

a) qui est publiée par une administration nationale;

b) qui représente cette région; et

c) qui donne de la région cartographiée une représentation

(i) aussi détaillée, précise, intelligible et récente que celle que donne, et

(ii) à une échelle au moins égale à 75 pour cent de l'échelle à laquelle a été établie

la carte à l'échelle la plus grande de la région, décrite dans la plus récente édition du catalogue

(2) Lorsqu'un navire se trouve

a) à plus de 5 milles marins d'un objet ou d'une sonde qui sont indiqués sur une carte et qui peuvent présenter un danger pour le navire, ou

b) dans les eaux d'une région dont la carte, d'après la plus récente édition du catalogue , est une carte

(i) qui est surtout destinée aux bateaux de plaisance, ou

(ii) qui représente surtout un mouillage, un cours d'eau ou un port dans les eaux duquel ce navire ne pénètre pas,

«l'alinéa (1)c) est censé s'appliquer à la carte de cette région, telle qu'elle paraît dans la dernière édition du catalogue et dont l'échelle est la deuxième par ordre de grandeur décroissante; toutefois, cette échelle ne doit pas être inférieure à 1:400 000 (2.16 milles marins au centimètre).»

Utilisation d'autres publications

6. (1) Sous réserve des paragraphes (2) et (3), tout navire doit, pour chaque région dans laquelle il est appelé à naviguer, utiliser correctement, lorsqu'il y navigue,

a) les publications suivantes du gouvernement canadien:

(i) l'annuaire des marées et des courants,

(ii) les instructions nautiques,

(iii) *Livre des feux, des bouées et des signaux de brume*,

(iv) si le navire est doté d'appareils radio, *Aides radio à la navigation*,

(v) le *Code des méthodes et pratiques nautiques, 1985*,

(vi) si le navire fait un voyage au cours duquel il peut rencontrer des glaces, le *Guide à l'usage des navires marchands qui naviguent dans les glaces en eaux canadiennes*;

b) le catalogue ; et

c) l'édition annuelle des *Avis aux marins*.

(2) A publication of any national authority may be substituted for any Canadian Government publication described in paragraph (1)(*a*), if the publication is, in respect of information that may affect the safe navigation of the ship in the area being navigated, as complete, accurate, intelligible and up-to-date as the Canadian Government publication.

(3) No ship need use the *List of Lights, Buoys and Fog Signals* if the information contained in that publication that may affect the safe navigation of the ship is described on the charts used by the ship.

Exception

8. Notwithstanding the provisions of this Part, a ship shall be deemed not to have contravened this Part if, before the ship navigated an area for which a chart or publication is required and after the ship was informed that it would be navigating that area, it was not possible for the ship

(*a*) to obtain the required chart or publication at any harbour at which the ship called;

(*b*) to obtain safely and legally the required chart or publication at any harbour that the ship passed at such a distance that it would not have been unreasonable for the ship to obtain the chart or publication at that harbour; or

(*c*) to receive a radio navigation warning containing information that may have affected the safe navigation of the ship in that area.

(2) Une publication de toute administration nationale peut remplacer une publication du gouvernement canadien mentionnée à l'alinéa (1)*a*), si elle est aussi détaillée, précise, intelligible et récente que la publication du gouvernement canadien, pour ce qui est des renseignements qui peuvent concerner la sécurité de la navigation du navire dans la région où il est appelé à naviguer.

(3) Il n'est pas nécessaire pour un navire d'utiliser le *Livre des feux, des bouées et des signaux de brume* si les renseignements qu'elle contient et qui peuvent concerner la sécurité de la navigation du navire sont donnés sur les cartes qu'utilise le navire.

Exception

8. Nonobstant les dispositions de la présente partie, un navire n'est pas censé les avoir enfreintes si, avant de naviguer dans une région pour laquelle il est requis d'avoir une carte ou une publication et après avoir été informé qu'il naviguerait dans cette région, il lui a été impossible

a) d'obtenir la carte ou la publication requise à un port où il a fait escale;

b) d'obtenir en toute sécurité et licitement la carte ou la publication requise à un port devant lequel il a passé à une distance qui lui permettait raisonnablement d'obtenir ladite carte ou publication à ce port; ou

c) de recevoir un message radio sur les dangers pour la navigation contenant des renseignements qui pouvaient concerner la sécurité de la navigation du navire dans cette région.

ANNEX IV

A guide for the radiotelephone operator

Calling

Before transmitting, every operator shall listen for a period long enough to satisfy himself that he will not cause harmful interference to transmissions already in progress. If such interference seems likely, he shall wait for the first break in the transmission.

A station having a distress, urgency or safety message to transmit is entitled to interrupt a transmission of lower priority.

Single station call

When an operator wishes to establish communication with a specific station, the following items shall be transmitted in the order indicated:

1. Call sign of the station called (not more than three times, once is sufficient if radio conditions are good).
2. The words "This is".
3. The call sign of the station calling (not more than three times and once is sufficient, if radio conditions are good).
4. The frequency on which the station is transmitting.
5. Invitation to reply "Over".

Example —

Vancouver Coast Guard Radio (repeated up to 3 times)
This is
Sea Fox VC-1234
On Channel 26
Over

Avoid "reverse" calling. Transmitting your own station identifier followed by "to" or "calling" and then the identifier of the station you wish to call, is not proper radio procedure. Remember that the identifier of the station being called is always spoken first, followed by "This is" and your own station's identifier.

Replying

An operator hearing a call directed to his station shall reply as soon as possible and advise the calling station to proceed with his message with the words "Go ahead" or "Stand by" followed by the anticipated number of minutes of delay.

Example —

Sea Fire CZ-1234
This is
Vancouver Coast Guard Radio
Go ahead
Over

Do not simply ignore the call. This results in unnecessary calling, thus using up air time that is needed by other stations.

APPENDICE IV

Guide du radiotéléphoniste

Appel

Avant d'émettre, l'opérateur doit écouter pendant un intervalle suffisant pour s'assurer qu'il ne causera pas de brouillage nuisible aux communications en cours. S'il semble probable qu'il cause du brouillage, il lui faut attendre la première pause de la communication qu'il pourrait gêner.

Toute station devant émettre un message de détresse, d'urgence ou de sécurité est autorisée à interrompre une communication de priorité moindre.

Appel d'une seule station

Lorsque l'opérateur désire établir la communication avec une station particulière, il doit émettre les données suivantes dans l'ordre indiqué:

1. L'indicatif d'appel de la station appelée (trois fois au plus et une seule fois si les conditions de communication sont bonnes).
2. Le mot « Ici ».
3. L'indicatif d'appel de la station appelante (trois fois au plus et une seule fois si les conditions de communication sont bonnes).
4. La fréquence à laquelle la station émet.
5. L'invitation à répondre (« Répondez »).

Exemple —

Vancouver radio Garde côtière (énoncé au plus trois fois).
Ici
Sea Fox VC-1234
Voie 26
Répondez

Il faut par ailleurs éviter d'« inverser » l'appel, c'est-à-dire de donner l'indicatif de la station appelante, suivi de « à » ou « appelle » et de l'indicatif de la station appelée. Il faut toujours donner d'abord l'indicatif d'appel de la station appelée, suivi du mot « Ici » et de l'indicatif de sa propre station.

Réponse

L'opérateur qui entend un appel adressé à sa station doit y répondre le plus rapidement possible et inviter la station appelante à lui communiquer son message, en émettant le mot « Continuez », ou lui indiquer qu'il n'est pas prêt à recevoir par l'expression « Attendez » suivie de la durée prévue de l'attente.

Exemple —

Sea Fire CZ-1234,
Ici
Vancouver radio Garde côtière
Continuez
Répondez

Ne jamais omettre de répondre à un appel: cela cause des appels inutiles et prive d'autres stations du temps d'antenne dont elles ont besoin.

When an operator hears a call but is uncertain that the call is intended for his station, he should not reply until the call has been repeated and understood.

When a station is called and the identity of the calling station is uncertain, the operator should reply immediately using the words "Station calling," his station's identification, and the words "Say again" and "Over."

Example —

Station Calling Sea Fire CZ-1234
Say Again
Over

To terminate communications, simply conclude your transmission with the command "Out" (which means "conversation is ended and no response is expected").

Example —

Canso Lock
This is
Tag-A-Long VY-4412
Received Canso Lock clearance
Tag-A-Long VY-4412
Out

Lorsque l'opérateur entend un appel sans être certain que celui-ci est destiné à sa station, il ne doit pas répondre avant que l'appel ait été répété et qu'il l'ait compris.

Lorsque l'opérateur de la station appelée est incertain de l'identité de la station qui l'appelle, il doit répondre immédiatement en disant le nom et l'indicatif d'appel de sa propre station, puis les expressions « Dites de nouveau » et « Répondez ».

Exemple —

Station appelante Sea Fire CZ-1234,
Dites de nouveau.
Répondez.

Pour mettre fin à la communication, il suffit de transmettre l'expression « terminé » (ce qui signifie « la conversation est terminée et je n'attends pas de réponse »).

Exemple —

Canso Lock,
Ici
Tag-A-Long VY-4412
Reçu autorisation Canso Lock
Tag-A-Long VY-4412
Terminé

Procedural words and phrases

While it is not practical to set down precise phraseology for all radiotelephone procedures, the following words and phrases should be used where applicable. Words and phrases such as "OK," "Repeat," "Ten-four," "Over and Out," "Breaker Breaker," "Come in please," or slang expressions should not be used.

Word or phrase	Meaning
Acknowledge	Let me know that you have received and understood this message.
Affirmative	Yes, or permission granted.
Break	To indicate the separation between portions of the message. (To be used where there is no clear distinction between the text and other portions of the message.)
Channel	Change to channel ___ before proceeding.
Confirm	My version is ___. Is that correct?
Correction	An error has been made in this transmission (message indicated). The correct version is ___.
Go ahead	Proceed with your message.
How do you read?	How well do you receive me?
I say again	Self-explanatory (use instead of "I repeat").
Mayday	The spoken word for distress communications.
Mayday relay	Is the spoken word for the distress relay signal.
Negative	No, or that is not correct, or I do not agree.
Over	My transmission is ended and I expect a response from you.
Out	Conversation is ended and no response is expected.
Pan Pan	The spoken word for urgency communications.

Expressions conventionnelles

Il est impossible d'établir une phraséologie précise convenant à toutes les procédures radiotéléphoniques. Néanmoins, on devrait autant que possible employer les expressions conventionnelles énumérées ci-dessous. Il faut éviter d'employer des expressions argotiques et des expressions telles que « OK », « Répetez », « Bien reçu », « Répondez et terminé », « Breaker breaker », « Répondez s'il vous plaît », etc.

Expression	Signification
Affirmatif	Oui ou permission accordée.
Attendez	Je dois m'interrompre pour quelques secondes ou minutes, attendez s'il vous plaît.
C'est exact	Se passe d'explication.
Chaque mot deux fois	a) A titre de demande : La communication est difficile. Veuillez formuler chaque mot deux fois. b) A titre de renseignement : La communication étant difficile, chaque mot de ce message sera formulé deux fois.
Comment recevez-vous ?	Me recevez-vous bien ?
Confirmez	Voici mon texte : Est-il correct ?
Continuez	Continuez à transmettre votre message.
Dites de nouveau	Se passe d'explication. (Ne pas utiliser le mot « Répetez ».)
Je dis de nouveau	Se passe d'explication. Substituer cette expression à « je répete ».
Mayday	Signal de communication de détresse.
Mayday relay	Expression employée comme signal de détresse en radiotéléphonie.
Négatif	Non ou cela n'est pas exact ou je ne suis pas d'accord.
Pan Pan	(Prononcé « panne ») Signal de communication d'urgence, en radiotéléphonie.
Prudence	Indique, dans le cas d'une situation de détresse prolongée, que les communications peuvent reprendre de façon restreinte, c'est-à-dire qu'elles doivent se limiter aux messages d'affaires des navires et aux messages d'une plus grande priorité.

Prudence	During long distress situations, communications can resume on a restricted basis. Communication is to be restricted to ships' business or messages of a higher priority.
Read back	Repeat all of this message back to me exactly as received after I have given OVER (do not use the word "repeat".)
Roger	I have received all of your last transmission.
Roger number	I have received your message Number ____.
Romeo, romeo, romeo	The phonetic pronunciation of the words "Received Mayday".
Stand by	I must pause for a few seconds or minutes, please wait.
Say again	Self-explanatory. (Do not use the word "repeat".)
Security	Is the spoken word for the safety signal.
Seelonce	Indicates that silence has been imposed on the frequency due to a distress situation.
Seelonce feenee	Is the international expression for a distress cancellation.
Seelonce Mayday	Is the international expression to inform an individual(s) that a distress situation is in progress. The command coming from the ship in distress.
That is correct	Self-explanatory.
Verify	Check coding, check text with originator and send correct version.
Wilco	Your instructions received, understood and will be complied with.
Words twice	(a) As a request: Communication is difficult, please send each word twice. (b) As information: Since communication is difficult, I will send each word twice.

Rectification	Une erreur a été commise dans la transmission (ou le message indiqué). Le texte correct est ...
Relisez	Après avoir entendu « Répondez », relisez tout le message exactement comme vous l'avez reçu. (Ne pas utiliser le mot « Répetez ».)
Répondez	Ma transmission est terminée et j'attends une réponse.
Roger	J'ai reçu votre dernière émission en entier.
Roger numéro	J'ai reçu votre message no ____.
Romeo, romeo, romeo	Expression phonétique du message « Reçu Mayday ».
Securité	Signal de securite en radiotéléphonie.
Separatif	Séparation entre parties du message. (Employer lorsqu'il n'y a pas de separation distincte entre le texte et les autres parties du message.)
Silence	Indique que le silence a été imposé à la fréquence employée, en raison d'une situation de détresse.
Silence fini	Expression internationale indiquant la fin du trafic de détresse.
Silence, Mayday	Expression internationale employée par la station en détresse pour imposer le silence à d'autres stations.
Terminé	La conversation est terminée et je n'attends pas de réponse.
Vérifiez	Vérifiez le code, vérifiez le texte avec l'expéditeur et envoyez la version correcte.
Veuillez accuser réception	Faites-moi savoir si vous avez reçu et compris le message.
Voie	Passez à la voie ... avant de continuer.
Wilco	Vos instructions ont été reçues, comprises et seront executées.

Phonetic alphabet

Letter	Word	Pronounced as
A	Alfa	AL FAH
B	Bravo	BRAH VOH
C	Charlie	CHAR LEE or SHAR LEE
D	Delta	DELL TAH
E	Echo	ECK OH
F	Foxtrot	FOKS TROT
G	Golf	GOLF
H	Hotel	HOH TELL
I	India	IN DEE AH
J	Juliett	JEW LEE ETT
K	Kilo	KEY LOH
L	Lima	LEE MAH
M	Mike	MIKE
N	November	NO VEM BER
O	Oscar	OSS CAH
P	Papa	PAH PAH
Q	Quebec	KEH BECK
R	Romeo	ROW ME OH
S	Sierra	SEE AIR RAH
T	Tango	TANG GO
U	Uniform	YOU NEE FORM or OO NEE FORM
V	Victor	VIK TAH
W	Whiskey	WISS KEY
X	X-ray	ECKS RAY
Y	Yankee	YANG KEY
Z	Zulu	ZOO LOO

Note: The syllables to be emphasized are underlined.

Example —

Using the phonetic alphabet (if asked to spell its vessel name and call sign where communication is difficult), the vessel Seawolf VY-1234 would express its identification as: Sierra, Echo, Alpha, Whiskey, Oscar, Lima, Foxtrot, Victor, Yankee, one, two, three, four.

Table d'épellation des lettres

Lettre	Mot	Prononciation
A	Alfa	AL FAH
B	Bravo	BRA VO
C	Charlie	TCHAH LI ou CHAR LI
D	Delta	DEL TAH
E	Echo	EK O
F	Foxtrot	FOX TROTT
G	Golf	GOLF
H	Hotel	HO TELL
I	India	IN DI AH
J	Juliett	DJOU LI ETT
K	Kilo	KI LO
L	Lima	LI MAH
M	Mike	MA IK
N	November	NO VEMM BER
O	Oscar	OSS KAR
P	Papa	PAH PAH
Q	Quebec	KE BEK
R	Romeo	RO MI O
S	Sierra	SI ER RAH
T	Tango	TANG GO
U	Uniform	YOU NI FORM ou OU NI FORM
V	Victor	VIK TAR
W	Whiskey	OUISS KI
X	X-ray	EKSS RE
Y	Yankee	YANG KI
Z	Zulu	ZOU LOU

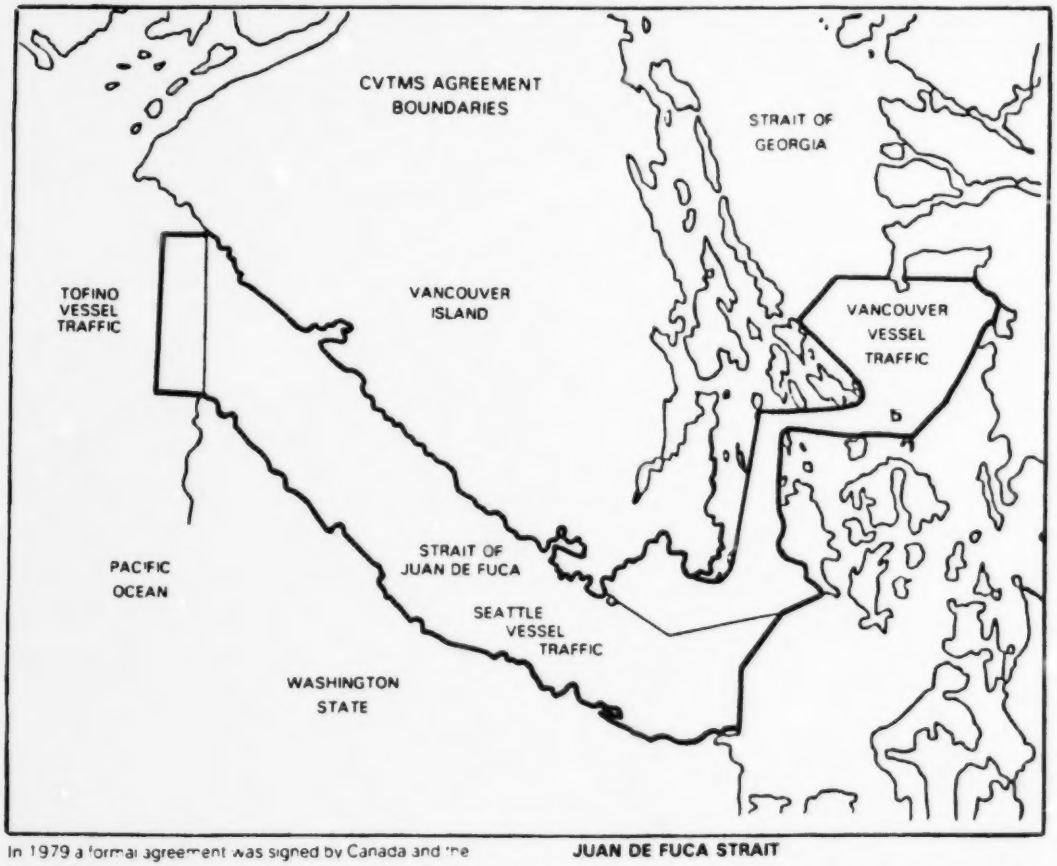
Nota : Les syllabes soulignees sont accentuees.

Exemple —

Si on demandait au navire Seawolf VY-1234 d'épeler son nom et son indicatif d'appel au cours d'une communication difficile, il le ferait comme suit: Sierra, Echo, Alfa, Whiskey, Oscar, Lima, Foxtrot, Victor, Yankee, un, deux, trois, quatre.

ANNEX V

CANADA/UNITED STATES COOPERATIVE VESSEL MANAGEMENT SYSTEM (CVTMS) AGREEMENT.



In 1979 a formal agreement was signed by Canada and the United States to establish the Cooperative Vessel Traffic Management System (CVTMS) to provide for the safe and efficient movement of vessel traffic while minimizing the risk of pollution in such waters as covered by the agreement. These waters include territorial waters of the United States and Canada as stated in the agreement.

WEST COAST APPROACHES TO JUAN DE FUCA STRAIT

In accordance with this agreement, Tofino VTS Centre will provide vessel traffic services west of 124°40'00"W in Juan de Fuca Strait and under special agreement, south to the 48°00'N parallel of latitude from the west coast of Washington State to seaward. This area is administered by the Canadian Coast Guard from the VTS Centre at Amphitrite Point, B.C. (*Tofino Traffic*).

All communications with vessels in this area will be conducted by *Tofino Traffic* on VHF channel 74 (156.725 MHz).

JUAN DE FUCA STRAIT

In accordance with this agreement, the area containing all Canadian and United States waters from the meridian of longitude 124°40'00"W which intersects the Canadian and United States shorelines thence easterly through the Juan de Fuca Strait, including all waters south and east of a line from Church Point to Race Rocks light to the intersection of the Canada/United States International boundary to Hein Bank light and bell buoy to Cattle Point is administered by the U.S.C.G. from the VTS Centre at Seattle, Washington (*Seattle Traffic*).

All communications with vessels in this area will be conducted by *Seattle Traffic* on VHF channel 14 (156.7 MHz).

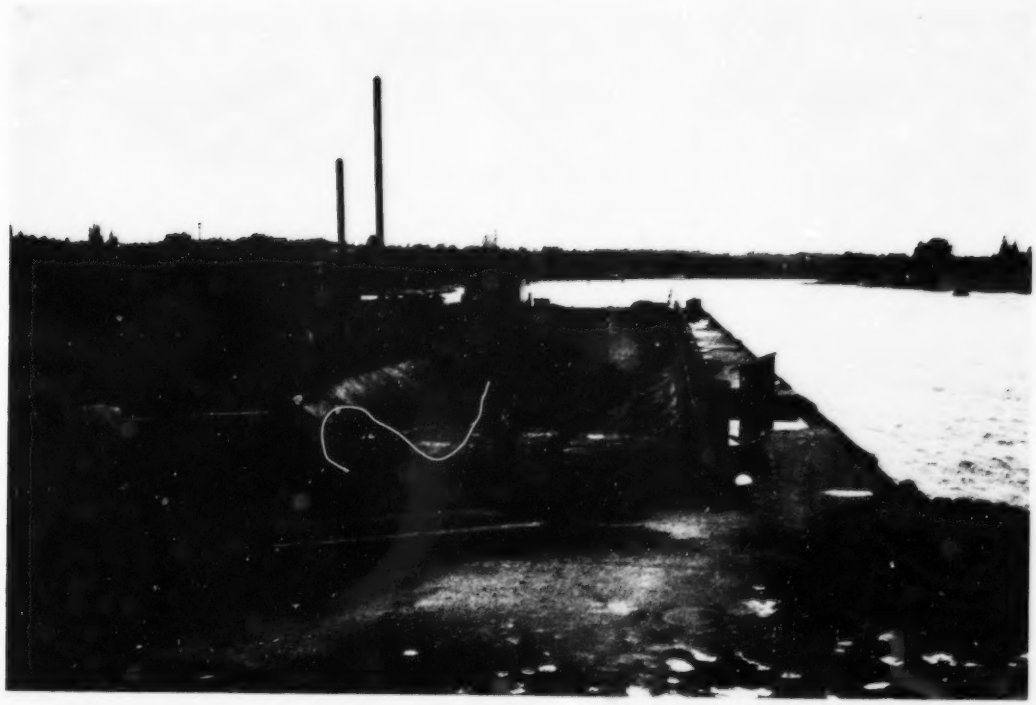
HARO STRAIT AND APPROACHES, BOUNDARY PASS, SOUTH PORTION STRAIT OF GEORGIA

In accordance with this agreement, the area containing all Canadian and United States waters north and east of a line from Church Point to Race Rocks light to the intersection of the Canada/United States International boundary to Hein Bank light and bell buoy to Cattle Point including all of Haro Strait, Boundary Passage and the southern portion of the Strait of Georgia is administered by the Canadian Coast Guard from the VTS Centre at Vancouver, B.C. (*Vancouver Traffic*).

All communications with vessels in this area will be conducted by *Vancouver Traffic* on VHF channel 11 (156.55 MHz).

NOTE: Vessels intending to enter either the Tofino or Vancouver VTS Zone from waters administered by Seattle Traffic are not required to provide the report specified in paragraph 6.2 of this notice.

"PAPU" at West Vancouver after the collision.
"PAPU" à Vancouver Ouest après l'abordage.



"MILLER 309" and "MILLER 310" at Langely, B.C. after the collision.

"MILLER 309" et "MILLER 310" à Langely (C.-B.) après l'abordage.

"LARAIN" at West Vancouver after the collision.

"LARAIN" à Vancouver Ouest après l'abordage.